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URBAN/MUNICIPAL

CHAIRMAN'S ADVISORY COMMITTEE ON ENVIRONMENTAL ISSUES

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GOVERNMENT DOCUMENTS

CHAIRMAN'S ADVISORY COMMITTEE

ON ENVIRONMENTAL ISSUES

Thursday, November 9, 1989 - 8:30 a.m.

COMMITTEE ROOM 15TH FLOOR, ELLEN FAIRCLOUGH BUILDING

AGENDA

Nov 9

1. (i) Minutes of Meeting - September 14, 1989
   (ii) Business Arising from minutes.

2. John Barr/Carol Donaldson Planning and Development Department to advise the Committee of the Environmental issues being reviewed by their Department.

3. Approval of Unclassified/Unregulated Part VII, EPA Sewage Systems

   For the information of the Committee.

4. Industrial Processing System for the Processing or Recycling of Household Garbage in Metro Toronto

   For the information of the Committee.

5. Letter from Dr. P. Boldrini on a notice of the November 16, 1989 Environmental Hearing on the Ontario Waste Management Corporation undertaking in West Lincoln. For support of his application as a public interest party at the hearing.

6. Letter from R. Baety on diversion credit.

   (a) Examples:
      (i) Pig Farmers
      (ii) Diaper Services
      (iii) Rental Services
   (b) Agenda
   (c) Trashing a $150 billion business

7. The Long Term Solid Waste System for The Greater Toronto Area

   For consideration and information.

8. Letter for Mr. Stan Keyes M.P. in Regards to an Invitation to Meet with Hamilton Officials on the Great Lakes Action Plan

   For the information of the Committee.

9. Environmental Conference of 1990

   A draft outline for this conference will be available at the meeting.

I

UNFINISHED BUSINESS:

OTHER BUSINESS:

Ruth Greenwood
Hamilton Public Library
Urban Municipal Collection, 2nd Floor
55 York Boulevard
Hamilton, Ontario
L8R 3K1 (PI)

#1

CHAIRMAN'S ADVISORY COMMITTEE

ON ENVIRONMENTAL ISSUES

The Chairman's Advisory Committee on Environmental Issues met on Thursday, September 14, 1989, at 8:30 a.m., Ellen Fairclough Building, 15th floor, Committee Room, Hamilton.

PRESENT:

Councillor J. Prentice	Chairman
Councillor G. Copps	
Councillor B. Hinkley	
Councillor H. Merling	
Paul Muldoon	Hamilton Environmental Action Team
Rashne Baetz	Conserver Society of Hamilton District
Brian McHattie	Hamilton Naturalist Club
Cuppy Katz	Cuppy Katz Enterprises Inc.
Prof. Keith Murphy	McMaster University
Ray Steward	Ministry of the Environment
S. Spencer	Regional Municipality of Hamilton-Wentworth

The Chairman's Advisory Committee on Environmental Issues presents **REPORT #3-89** and respectfully recommends:

1. Environmental Purchasing

Recommendation

i) The following be recommended to Council as an initial Statement of Principal: "That in order to increase the development and awareness of Environmentally Sound Products, all departments in conjunction with Purchasing staff review their contracts and tender specifications for goods and services, to ensure that wherever possible and economical, specifications are amended to provide for expanded use of products and services that contain the maximum level of post-consumer waste and/or recyclable content, without significantly affecting the intended use of the product or service, and it is recognized that cost analysis is required in order to ensure that the products are made available at competitive prices."

ii) That the Regional Municipality of Hamilton-Wentworth contribute $5,000 towards the $60,000 cost of a study that will provide Purchasing Guidelines for Products Containing Post-Consumer Waste and/or Products which are environmentally friendly.

By participating in this initial study we will be involved with the other large municipalities and continue to have input in the ongoing round table discussions.

1. Cont'd...

iii) That the Regional Municipality of Hamilton-Wentworth begin to develop policies and re-write our specifications, where appropriate, to include products that are identified with "Environmental Choice Eco Logo" as defined and established by Environment Canada.

vi) That the study include the benefits of using products that are recyclable.

v) There are available resources within the Solid Waste Reserve however it is recommended that this report be forwarded to the Finance and Personnel Committee for a method of financing.

Councillor H. Merling opposed recommendation 4.

2. Home Composting Program

i) That the Regional Municipality of Hamilton-Wentworth proceed with the implementation of a Home Composting Program.

ii) That the Regional Municipality of Hamilton-Wentworth review the existing composting systems to determine which system is the best for this Region.

iii) This committee senses the urgency for this type of program and that Council report back to this Committee on the timing.

iv) That this report be forwarded to the Finance and Personnel Committee for a method of financing.

Respectfully submitted

J. Prentice
Chairman

****

Information Items

a) Environmental Conference of 1990

Mr. Spencer to bring back a draft outline for this Conference for review at the next meeting.

b) Tipping Fees

That this item be received as information

c) The Rape Continues Unabated

That this item be received as information

d) The Rotary Kiln Incineration Process

That this item be received as information

e) Metropolitan Toronto Home Composting Program

That this item be received as information

f) The NRT Automated Recycling Technology

That this item be received as information

JR:fd

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Paul Muldoon	Hamilton Environmental Action Team
Rashne Baetz	Conserver Society of Hamilton District
Brian McHattie	Hamilton Naturalist Club
Cuppy Katz	Cuppy Katz Enterprises Inc.
Prof. Keith Murphy	McMaster University
Ray Steward	Ministry of the Environment
S. Spencer	Regional Municipality of Hamilton-Wentworth

ALSO PRESENT:

T. Bradley	Purchasing Department
D. Elder	Purchasing Department
J. MacDonald	Conserver Society

1. It was moved by B. Hinkley and seconded by G. Copps that the minutes of the meeting of August 10, 1989 be approved as amended.

   Under item 4 "Looking for Options, Waste Management in Halton Region 1989", the secretary omitted the comments made by B. McHattie, in connection with the use of paper cups and towel and whether or not these are recyclable items.

2. Environment Conference of 1990

   Councillor Hinkley indicated that he would like to see the Conference take place but wanted to make sure that the Committee is totally behind the Conference. He does not have that feeling.

   Councillor Prentice is of the same feeling and he indicated that we should review this item for some time in the future.

   Mr. Muldoon indicated that we should go on with the Conference.

   Mr. Katz stated that he has reviewed the Conference with the Rotary Club and the president replied to the Chairman, letter attached, indicating their willingness in working with the Committee.

Ms. Baetz indicated that the Conserver Society would participate.

Councillor Hinkley was encouraged by the response shown by the members and indicated that if we proceed it must be Hamilton Wentworth oriented. Some issues should be as follows:

- Keep Hamilton Clean
- Hamilton Harbour Cleanup
- Landfill
- Composting
- Upper Ottawa Street Landfill
- Blue Box
- Purchasing Products
- Storm Sewer Program

It was suggested that this Committee set policy direction and tune and that some outside agency or organization do the planning of the Conference.

Mr. Muldoon stated that we would have to do some thinking on displays, lectures, etc.

Mr. Steward indicated that the Conference not be similar to the 1980 conference but based on Terms of Reference prepared by this Committee.

Mr. Katz advised the Committee of an article in the Globe and Mail, copy attached, on the Blue Box program indicating a possible end to the Blue Box program.

The members were advised that the subsidies for the Blue Box program were decreasing at a rate of 50%, 40%, 30%, 20% and 10% with no subsidies after 5 years.

Councillor Prentice advised that it costs money to keep some programs running.

Councillor Merling indicated that we decide on a budget and promote the conference throughout the area.

Councillor Hinkley asked will the Engineering Services Committee approve an expenditure to originate the draft proposal and budget.

Mr. Spencer indicated he will bring back a draft to this Committee for review in a month. Motion by Councillor Hinkley and seconded by Councillor Copps.

Prof. Murphy stated Mr. Spencer needs some direction from this Committee in order for this Committee to review for change and or approval.

Councillor Hinkley advised that the Committee could expand on the proposal.

3. Tipping Fees

Mr. Spencer explained the present system of fees and what is being done with the surplus monies.

It was indicated that some of the monies could be diverted to other environment issues.

Ms. Baetz asked if the present charges cover, or/are being used for landfill closure or any related works.

Mr. Spencer indicated with the present fees the existing debt will be paid off in two and one-half years.

Prof. Murphy asked if any tipping fees in surplus could be redirected to recycling.

Mr. Spencer advised that the tipping fees were covering all our present costs.

Mr. Muldoon asked how the new rates were arrived at and where any surplus monies were going. Mr. Spencer indicated that the cost were reviewed based and the Region's around Hamilton-Wentworth and that surplus funds were going to the Solid Waste Fund. He also indicated that use of the surplus monies could only be used for similar purposes.

Prof. Murphy agreed.

It was moved by Councillor Hinkley and seconded by Prof. Murphy that this item be received.

4. The Rape Continues Unabated

It was moved by Ms. Baetz and seconded by P. Muldoon that this item be received.

5. The Rotary Kiln Incineration Process

It was moved by Councillor Hinkley and seconded by C. Katz that this item be received.

6. Environmental Purchasing

Mr. Bradley asked the Committee to consider the three (3) recommendations in the report. The members were advised by Mr. Elder that 12 purchasing agencies had met for the two day seminar. They had addressed many areas as outlined in the report. Councillor Hinkley circulated a package around the table. Wherever possible tender documents should be prepared with environmentally sound, recyclable paper.

Councillor Hinkley indicated that Federal and Provincial Legislation should be encouraging these issues.

Councillor Copps stated that sometimes the economic costs form part of the decisions on which way we go on these issues.

The Committee was advised that a Toronto firm Dillion Consultants was preparing a report on this subject.

P. Muldoon indicated that ceramic cups were being used instead of styrofoam in many areas.

R. Steward advised that purchasing cost is not the only factor to be considered on this issue.

Mr. Elder stated that the study will be looking at what is available produce-wise.

Councillor Hinkley indicated that the facts are that styrofoam cups are cheap initially but may be more expensive in the long run.

Councillor Hinkley suggested that this study should be supported as there is a lot of factors/items to be considered.

It was moved by C. Katz and seconded by Councillor Hinkley that the following recommendations be approved:

i) The following be recommended to Council as an initial Statement of Principal: "That in order to increase the development and awareness of Environmentally Sound Products, all departments in conjunction with Purchasing staff review their contracts and tender specifications for goods and services, to ensure that wherever possible and economical, specifications are amended to provide for expanded use of products and services that contain the maximum level of post-consumer waste and/or recyclable content, without significantly affecting the intended use of the product or service, and it is recognized that cost analysis is required in order to ensure that the products are made available at competitive prices."

6. Cont'd...

ii) That the Regional Municipality of Hamilton-Wentworth contribute $5,000 towards the $60,000 cost of a study that will provide Purchasing Guidelines for Products Containing Post-Consumer Waste and/or Products which are environmentally friendly.

By participating in this initial study we will be involved with the other large municipalities and continue to have input in the ongoing round table discussions.

iii) That the Regional Municipality of Hamilton-Wentworth begin to develop policies and re-write our specifications, where appropriate, to include products that are identified with "Environmental Choice Eco Logo" as defined and established by Environment Canada.

vi) That the study include the benefits of using products that are recyclable.

v) There are available resources within the Solid Waste Reserve however it is recommended that this report be forwarded to the Finance and Personnel Committee for a method of financing.

D. Elder indicated that the 5,000 could include products that are recyclable.

T. Bradley advised that a study on paper cups could be done inhouse.

Councillor Merling opposed recommendation #4.

7(a) Metropolitan Toronto Home Composting Program

It was moved by P. Muldoon and seconded by Councillor Hinkley that this item be received.

(b) Home Composting Program

P. Muldoon displayed a model Home Composter and described how it worked. P. Muldoon supplied the secretary with a petition with 1200 signatures which were obtained at the Festival of Friends weekend. P. Muldoon indicated that the public approached the composting area and asked a lot of questions about composting, after which they signed the petition.

7(b) Cont'd...

The Committee was told that in Kitchener they use barrels with holes punched in them for composting.

Mr. J. MacDonald of the Conservor Society advised that he had made a presentation to Ancaster Council on Home Composting and he stated that they will be ordering approx. 500 units.

The Committee was told that large skids can be used as compostors. Councillor Hinkley wanted to know if the composter was made of virgin or recycled plastic and if there were subsidies available for their purchase.

Mr. Spencer advised that the region was not considering any program of this type at the present time.

Prof. Murphy indicated that if these composters were made available then proper instruction for use would have to be included.

Mr. J. McDonald suggested to the committee and media present that a regular column in the newspaper on environment issues may be beneficial.

P. Muldoon said that the composting system acts in approx. 3 weeks.

It was moved by P. Muldoon/Councillor Hinkley that the following recommendation be approved.

i) That the Regional Municipality of Hamilton-Wentworth proceed with the implementation of a Home Composting Program.

ii) That the Regional Municipality of Hamilton-Wentworth review the existing composting systems to determine which system is the best for this Region.

iii) This committee senses the urgency for this type of program and that Council report back to this Committee on the timing.

iv) That this report be forwarded to the Finance and Personnel Committee for a method of financing.

8. The NRT Automated Recycling Technology

Mr. Spencer indicated that the region is reviewing this type of a system at Swaru at the present time costing approx. $16,000,000.00.

8. Cont'd...

Ms. Baetz stated that source separation is the responsibility of the homeowner.

Also suggested was a neigborhood centralized area for composting. Councillor Prentice indicated he hoped the markets for recycled materials stay in place.

It was moved by Ms. Baetz and seconded by B. McHattie that this item be received for information.

Other Business

Test Burn at Swaru

Mr. Spencer advised that the material handling of fluff is being tested this week. He also indicated that a 24 hour stack test will take place the week of September 25th. A two day trail test burn had been run with no problems.

Mr. Spencer did state that if the available fluff was burned than SWARU would be running at capacity. A private laboratory would be doing the testing on this waste.

Mr. Katz suggested that if the testing at SWARU proved satisfactory then maybe the scrap dealing should be asked to build their own facility.

Mr. Spencer indicated that these facilities are very expensive to build and that government approval would be required.

Councillor Prentice did not think they would get approval for a facility of this type.

Ms. Baetz wondered if the scrap dealers had looked at recycling and Mr. Spencer indicated that the market is not there for this type of material.

B. McHattie asked if the public can apply to the Region for any monies available in the Solid Waste fund for environmental projects.

Mr. Spencer advised that no funds were available for these purposes, but that grants can be requested.

J. Ramsay, Secretary
Chairman's Advisory Committee on
Environmental Issues

THE GLOBE AND MAIL, MONDAY, SEPTEMBER 11, 1989 A3

Glut of glass, newsprint called threat to recycling

BY KATHLEEN BYRNE
The Globe and Mail

Ontario's recycling industry is "coming close to blowing up" in the face of two severe setbacks, says the director of the Recycling Council of Ontario and the creator of Metro's Blue Box Program.

Jack McGinnis said recent problems in the glass recycling industry, and an expected end to a subsidy for exporters of old newsprint, have the recycling industry in a bind that could spell disaster.

For almost two weeks, Multi Material Container Recycling Inc. (MRCI), which processes glass collected in recycling programs, has been sending glass back to collection depots. Last week, it stopped accepting material for an indefinite period.

Problems in newspaper recycling began about a year ago, he said, when the start of Metro's Blue Box Program caused a glut of papers that could not be handled by the Ontario mills that manufacture newsprint from old newspapers.

The province stepped in with the subsidy because the surplus had to be exported, and U.S. prices were much lower than those paid to municipalities for the papers.

Last week, Mr. McGinnis learned that the Ministry of the Environment is expected to announce the end of the subsidy tomorrow.

If the paper subsidy is discontinued, Mr. McGinnis said, the mills will lower the price they pay for the newspapers, thus reducing the revenues that municipalities use to finance their recycling programs.

The situation is doubly unfortunate, he said, because a new mill in Whitby, Ont., is expected to open in July, 1990. The mill, operated by Atlantic Packaging Products Ltd., will require up to 125,000 tonnes of newsprint almost immediately and the province could face a shortage.

THE ROTARY CLUB OF HAMILTON, ONTARIO

112 King Street East, Hamilton, Ontario, Canada L8N 1A8
Telephone: (416) 522-4588

September 7, 1989

Mr John Prentice,
Chairman,
Advisory Committee on Environmental Issues,
P.O. Box 910,
Hamilton, Ontario,
L8N 3V9

Dear Mr Prentice:

The Rotary Club of Hamilton wishes to express its interest in working with your Committee.

Rotary International has requested that its member clubs take an active part in environmental issues.

One of our Directors, Mr. Cuppy Katz, is a member of your Committee. He and Mr. Peter Dawson, the Convener of our Environment Committee have agreed to act as our liaison with your Committee.

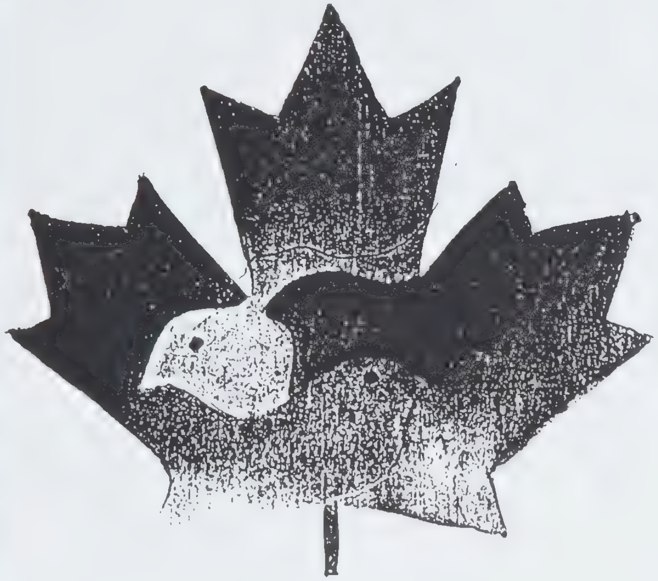
It is our understanding that you intend to sponsor an Environmental Conference in this area in 1990, and our Board has "approved the expression of interest". We would be pleased to investigate areas of co-operation, with a view to finding ways in which the efforts of our Club may aid the achievement of your objectives.

Yours sincerely,

Alan Murray McPherson

Alan Murray McPherson
President

How to Find **Planet-Friendly** Products



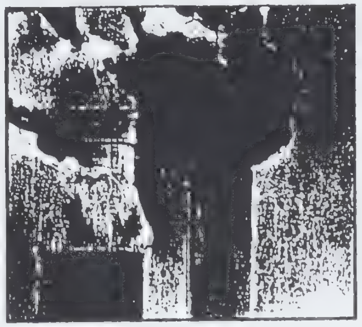
Look for the Environmental Choice EcoLogo

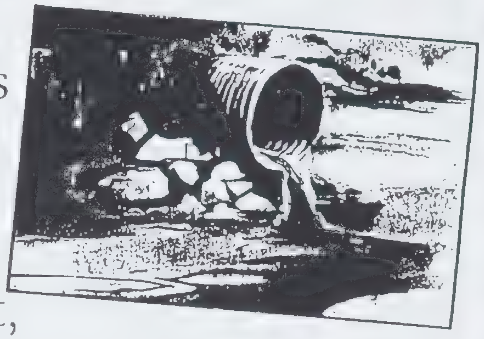
Soon The EcoLogo will begin to appear across Canada on the planet-friendliest products available, helping consumers make informed choices.

Environment Canada Environnement Canada

Turning Concern Into Action

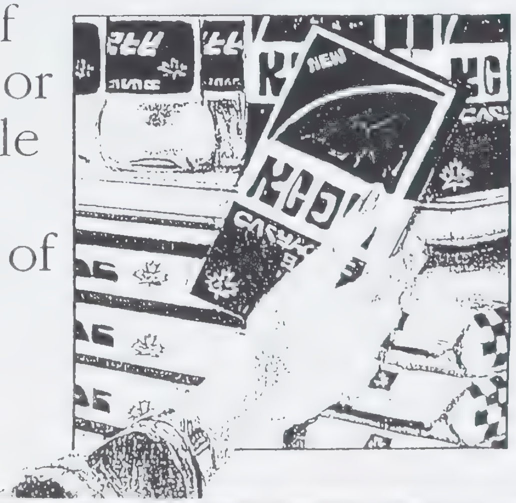
Surveys show that people across the country are concerned about the health of the environment... about air pollution and the destruction of the ozone layer, hazardous wastes that pollute the water, and the mountains of garbage produced by disposable and over-packaged products. Canadians are ready to turn that concern into action.





By choosing products that are the least harmful to the environment, Canadian consumers can have an immediate and personal influence on the health of the planet.

The Environmental Choice Program was created to help consumers identify products that maximize energy-efficiency and the use of recycled or recyclable materials, and minimize the use of environmentally hazardous substances.



How Products Become Eligible ForThe EcoLogo

An independent board has been appointed by the Federal Environment Minister to recommend products to receive the EcoLogo, following a four-step approval process:

1 ESTABLISH CATEGORIES
Suggestions for broad product categories to be considered by the board are received from the public. So far, the board has studied the categories of recycled plastics, construction materials made from recycled cellulose fibre, and re-refined lubricating oil.

2 SET GUIDELINES
Once a category is proposed, the public is invited to provide comment on the development of national guidelines. Upon approval by the Minister of the Environment, guidelines are announced in the Federal Government publication, *The Canadian Gazette.*

3 TEST PRODUCTS
Manufacturers may then submit applications for products to be tested against the established guidelines.

4 GRANT ECOLOGO
Once tested and approved, every-day products will be identified by the EcoLogo, an easy-to-recognize label consisting of three doves intertwined in the shape of a maple leaf.

Canada

We're Looking For Ideas

If you can suggest a way of making an existing product category more environmentally sound, or if you have an idea for a new product category, please fill in this reply card and mail it to us at the address below. The proposed improvements may be to any stage of the product's life – manufacture, use or disposal. They could involve, for example, the use of recycled materials, a more energy-efficient means of production, less packaging or some other way of making the product environmentally safer. Suggestions for small improvements are welcome, as long as there is some benefit to the environment.

PRODUCT DESCRIPTION
What is its function?

ENVIRONMENTAL IMPROVEMENT
In what way is it safer than existing products?

Please enclose additional information if available

Name:

Address:

Telephone:

Mail to: **Environmental Choice**
Environment Canada
25 St. Clair Ave. East,
Toronto, Ontario M4T 1M2

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#2

ECOLOGICAL AND ENVIRONMENTAL ADVISORY COMMITTEES

LOOKING AHEAD TO A CRITICAL DECADE

A CONFERENCE CO-SPONSORED BY THE
HALTON, NIAGARA, AND WATERLOO EEACs

As the importance and profile of environmental concerns continues to grow, critical decisions will have to be made in the 1990s. Sustainable development has been promoted as one response to increasingly serious environmental problems.

This working conference is for those interested in the role of advisory committees and will allow EEACs to explore such questions as:

What is the message of sustainable development?

How can the principles of sustainability be reflected in the advice EEACs provide to assist in making these critical decisions?

DATE: SATURDAY, NOVEMBER 18,1989
LOCATION: BROCK UNIVERSITY, ST.CATHARINES
(see back)

PROGRAM

9:00 A.M., Room 245, Thistle Complex

In the morning, participants will explore sustainable development in a local and regional context with the help of:

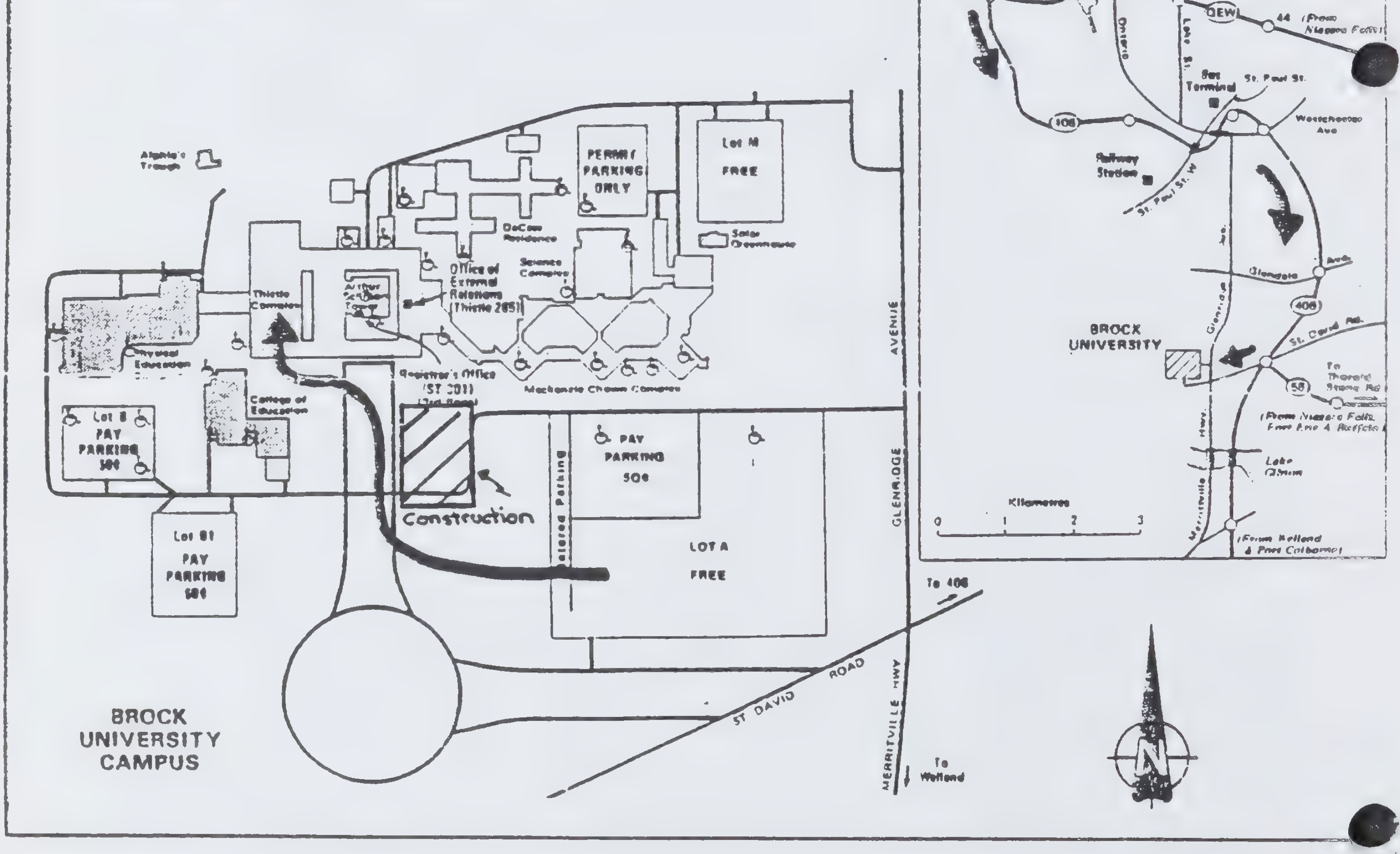
Chris Winter - Conservation Council of Ontario
Rick Findlay - Ontario Round Table
George Francis - University of Waterloo
Sally Lerner - University of Waterloo
Charlie Ferguson - INCO
Donna Stewartson - Conservation Council and O.F.Agric.
Barry Beale - Ministry of Energy

This will include on overview of sustainable development and a panel discussion focussing on specific action in such areas as natural area protection, industrial development, and the rural environment.

In the afternoon, come prepared to think and contribute. It will be dedicated to small working groups examining EEAC concerns in the context of sustainable development. A Plenary session will conclude the day at 4:30 followed by a reception. Lunch will be provided.

LOCATION

Room 245, Thistle Complex


Alphie's Trough
PERMIT PARKING ONLY
Lot M FREE
DeCew Residence
Solar Greenhouse
Office of External Relations (Thistle 285)
Science Complex
Thistle Complex
Arthur Schmon Tower
Physical Education
College of Education
Registrar's Office (ST 201)
Mackenzie Chown Complex
Lot B PAY PARKING 50¢
Lot B1 PAY PARKING 50¢
PAY PARKING 50¢
Construction
Metered Parking
LOT A FREE
AVENUE
GLENRIDGE
MERRITVILLE HWY
ST DAVID ROAD
To 406
To Welland
BROCK UNIVERSITY CAMPUS
N
ST. CATHARINES
(From Hamilton & Toronto)
Merritdale Pond
Exit 49
47
46
QEW
44 (From Niagara Falls)
Ontario
Lake St.
Bus Terminal
St. Paul St.
Westchester Ave
Railway Station
St. Paul St. W
406
Glendale
Glenridge
BROCK UNIVERSITY
St. David Rd.
58
To Thorold Stone Rd
(From Niagara Falls, Fort Erie & Buffalo)
Lake Gibson
Merrittville Hwy.
Kilometres
0
1
2
3
(From Welland & Port Colborne)

Please RSVP to: David Miller (416)984-3630 (Niagara)
(by November 8) Chris Gosselin (519)885-9467 (Waterloo)
Suzanne McInnes (416)827-2151 (Halton)

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#3

Ministry of the Environment
Ontario
Ministère de l'Environnement

APPROVALS BRANCH

250 Davisville Avenue
Toronto, Ontario
M4S 1H2

250, avenue Davisville
Toronto (Ontario)
M4S 1H2

July 13, 1989

NOTICE 1/89

TO: All Directors, Part VII, Environmental Protection Act

RE: APPROVAL OF UNCLASSIFIED/UNREGULATED PART VII, EPA SEWAGE SYSTEMS

In the mid-1970's the Ministry entered into Agreements with individual municipalities (i.e. Health Units across the Province) for the purpose of permanently delegating to the municipality certain responsibilities under Part VII, Environmental Protection Act and the regulations with respect to septic tank systems and certain other sewage systems and matters related to Part VII, EPA. Essentially, these agreements were for the individual municipalities to administer the Part VII program as it relates to the treatment and disposal of domestic sewage from residential, industrial, institutional and commercial development occurring in rural areas of the Province which do not have access to municipal communal sewage works facilities.

Since those agreements were executed the various municipalities party to the agreements have provided an invaluable service to the Ministry and been an integral and indispensible part of the Ministry's overall environmental protection program.

Recently, however, there have been a number of legislative and/or regulative changes made to or under the Environmental Protection Act. For example, Ontario Regulation 309 - Waste Management was introduced in 1980. In 1983, Bill 52 amended the definition of **sewage system** as contained in Part VII, EPA. In addition, the upswing in the economy has had a major impact upon the numbers and type of applications which are being made under Part VII, Environmental Protection Act.

Of significant concern to the Ministry has been the increase in the number of applications being made for the use of Part VII sewage systems for the treatment and disposal of waste other than domestic waste. These applications range from relatively non-complex systems for the treatment and disposal of waste flows from rural car wash facilities to advanced waste treatment systems for brewery waste, industrial/chemical wastes, slaughter-house wastes, etc.

While there is no question that any one of these applications/proposals can be designed and the waste pretreated so as to render it suitable for effluent disposal via a leaching bed, the Ministry has serious reservations respecting the propriety of requesting/expecting the municipalities party to the agreement to review and approve such facilities, which are more in the nature of industrial effluents. This is not to say that the Ministry questions the ability or the integrity of the municipalities as this definitely is not the case. Rather, it simply reflects a significant concern of the Ministry and many of the municipalities administering the program on behalf of the Ministry.

In order to address this problem, it is requested that the following procedures be adopted.

1. Any application for a Part VII, EPA Certificate of Approval for the treatment and disposal of a waste other than domestic sewage (i.e. other than human body waste, toilet or other bathroom waste, waste from other showers and tubs, etc.) should be directed to the Approvals Branch, Ministry of the Environment and the applicant so advised. Examples of such applications would include proposals for the treatment of brewery waste, slaughter-house or dairy waste, industrial process wastes, chemical wastes, etc.

2. Applications for the treatment and disposal of both domestic and non-domestic waste should be given a preliminary screening by the Part VII Director. If it is possible and reasonable to segregate the waste streams into domestic waste and non-domestic waste this should be done. The Part VII Director should review and approve the domestic waste treatment system as he sees fit. The non-domestic waste system application should be forwarded to the Ministry for review and comment. Alternatively, the total package could be sent to the Ministry for review and approval.

Recent examples of such systems are automobile service stations/repair facilities; heavy vehicle maintenance facilities associated with an industry such as a mine or forest operation; and industrial or commercial facility producing a liquid waste which meets any of the definitions contained in the attached Appendix A.

In instances where it is not clear what the precise nature of the non-domestic waste stream is or could be, it is requested that you contact either Brian J. Cooper at (416) 440-3568 or Bob Cornelius at (416) 440-3569.

3. Where an applicant or its agent disagrees with the opinion of the Part VII Director as to the suitability of a specific waste for treatment in a classified/regulated sewage system the applicant should be requested to submit a report from a qualified professional which states the nature, quality and quantity of the non-domestic waste; the treatment process(es) to be employed and the effluent quality to be discharged to the leaching bed.

J.R. Bray, P. Eng.
Director

C.E. McIntyre, P. Eng.
Executive Director
Approvals and Engineering

cc: MOE Regional Directors
MOE Managers - Abatement
MOE Managers - Technical Support
MOE District Officers
Regional Municipalities
Chairman, Local Boards of Health
Medical Officers of Heath
Health Unit Directors
Health Unit Offices and Sub-Offices
Ministry of Health - Public Health Branch
Environmental Health Department - Ryerson Polytechnical Institute

BJC/es
Enclosure

APPENDIX A

To assist Part VII Directors in determining which Part VII applications should be forwarded to the Approvals Branch, Ministry of the Environment for processing, the following definitions are provided. These definitions have been taken from Ontario Regulation 309, Environmental Protection Act.

- **"Asbestos waste"** means solid or liquid waste that results from the removal of asbestos-containing construction or insulation materials or the manufacture of asbestos-containing products and contains asbestos in more than a trivial amount or proportion;

- **"Commercial waste chemical"** means a waste that is or contains a commercial chemical product or manufacturing chemical intermediate of a specified generic name and includes,

  i. an off-specification commercial chemical product or manufacturing chemical intermediate which, if it met specifications, would have the specified generic name,

  ii. residues or contaminated material from the clean-up of a spill of a commercial chemical product or manufacturing chemical intermediate of the specified generic name or of an off-specification commercial chemical product or manufacturing chemical intermediate which, if it met specifications, would have the specified generic name, or

iii. an empty container or the liner from an empty container that contained a commercial chemical product or manufacturing chemical intermediate of the specified generic name, or an off-specification commercial chemical product or manufacturing chemical intermediate which, if it met specifications, would have the specified generic name, or residues or contaminated materials from the clean-up of a spill of any of them, unless the empty container or the liner from the empty container has been triple rinsed,

but, except as specified in subparagraph i, ii or iii, does not include a waste stream or waste material contaminated with material of the specified generic name.

- **"Corrosive waste"** means a waste that,

  i. is aqueous and has a pH less than or equal to two or greater than or equal to 12.5 as determined by a pH meter, or

  ii. is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 millimetres per year at a test temperature of 55° Celsius using test NACE TM-01-69 or an equivalent test approved by the Director;

- **"Hazardous industrial waste"** means a generic or specific waste listed in Schedule 1 but does not include a waste listed in Schedule 1E;

- **"Hazardous waste"** means a waste that is a,

    i. hazardous industrial waste,
    ii. acute hazardous waste chemical,
    iii. hazardous waste chemical,
    iv. severely toxic waste,
    v. ignitable waste,
    vi. corrosive waste,
    vii. reactive waste,
    viii. radioactive waste, except radioisotope waste disposed of in a landfilling site in accordance with the written instructions of the Atomic energy Control Board,
    ix. pathological waste,
    x. leachate toxic waste, or
    xi. PCB waste as defined in Ontario Regulation 11/82,

    and includes a mixture of acute hazardous waste chemical, hazardous waste chemical, hazardous industrial waste, pathological waste, radioactive waste or severely toxic waste and any other waste or material, but does not include,

- **"Hazardous waste chemical"** means a commercial waste chemical having a generic name listed in Part B of Schedule 2, but does not include a waste listed in Part E of Schedule 2;

- **"Ignitable waste"** means a waste that,

    i. is a liquid, other than an aqueous solution containing less than 24 per cent alcohol by volume and has a flash point less than 60° Celsius, as determined by the Tag Closed Cup Tester (ASTM D-56-79), the Setaflash Closed Cup

Tester (ASTM D-3243-77 or ASTM D-3278-78), the Pensky-Martens Closed Cup Tester (ASTM D-93-79), or as determined by an equivalent test method approved by the Director.

ii. is a solid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited burns so vigorously and persistently that it creates a danger,

iii. is an ignitable compressed gas (Class 2, Division 1) as defined in the regulations under the Transportation of Dangerous Goods Act (Canada), or

iv. is an oxidizing substance (Class 5, Divisions 1 and 2) as defined in the regulations under the Transportation of Dangerous Goods Act (Canada);

- **"Industrial waste"** means waste from,

  i. an enterprise or activity involving warehousing, storage or industrial, manufacturing or commercial processes or operations,

  ii. research or an experimental enterprise or activity,

  iii. an enterprise or activity to which subparagraph i would apply if the enterprise or activity were carried on for profit,

iv. clinics that provide medical diagnosis or treatment, or

v. schools, laboratories or hospitals;

- **"Leachate toxic waste"** means a waste producing leachate containing any of the contaminants listed in Schedule 4 at a concentration in excess of one hundred times that specified in the Schedule using the Leachate Extraction Procedure or an equivalent test method approved by the Director;

- **"Liquid industrial waste"** means waste that is both liquid waste and industrial waste but does not include,

i. hauled sewage;

ii. waste from the operation of a sewage works described in subparagraph xiii of paragraph 27,

iii. waste from the operation of a water works subject to the Ontario Water Resources Act,

iv. waste that is produced in any month in an amount less than twenty-five litres or otherwise accumulated in an amount less than twenty-five litres,

v. waste directly discharged by a generator from a waste generation facility into a sewage works subject to the Ontario Water Resources Act or established before the 3rd day of April, 1957 or into a sewage system, as defined in Part VII of the Act.

vi. waste that results directly from food processing and preparation operations, including food packing, food preserving, wine making, cheese making and restaurants,

vii. drilling fluids and produced waters associated with the exploration, development or production of crude oil or natural gas,

viii. processed organic waste, or

ix. asbestos waste;

- **"Pathological waste"** means,

  i. any part of the human body, including tissues and bodily fluids, but excluding fluids, extracted teeth, hair, nail clippings and the like, that are not infectious,

  ii. any part of the carcass of an animal infected with a communicable disease or suspected by a licensed veterinary practitioner to be infected with a communicable disease, or

  iii. non-anatomical waste infected with communicable disease;

- **Processed organic waste"** means waste that is predominantly organic in composition and has been treated by aerobic or anaerobic digestion, or other means of stabilization, and includes sewage residue from sewage works that are subject to the provisions of the Ontario Water Resources Act.

- "Reactive waste" means a waste that,

  i. is normally unstable and readily undergoes violent change without detonating,

  ii. reacts violently with water,

  iii. forms potentially explosive mixtures with water,

  iv. when mixed with water, generates toxic gases, vapours or fumes in a quantity sufficient to present danger to human health or the environment,

  v. is a cyanide or sulphide bearing waste which, when exposed to pH conditions between two and 12.5, can generate toxic gases, vapours or fumes in a quantity sufficient to present danger to human health or the environment,

  vi. is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement,

  vii. is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure, or

  viii. is an explosive (Class 1) as defined in the regulations under the Transportation of Dangerous Goods Act (Canada);

- "Severely toxic waste" means a waste that contains a contaminant listed in Schedule 3 at a concentration greater than one part per million;

NOTES: 1. Certain wastes such as food processing wastes, wine making wastes, cheese wastes, etc. are treatable in a Class 6 Sewage System. However, due to the characteristics of the waste (typical high BOD_5, COD and SS, etc.) a "conventional" aerobic system cannot be used without significant alterations. Therefore, systems to treat these high strength wastes should be directed to the Approvals Branch.

Ontario
Ministry of the Environment
Ministère de l'Environnement

250 Davisville Avenue
Toronto, Ontario
M4S 1H2

250, avenue Davisville
Toronto (Ontario)
M4S 1H2

NOTICE 2/89

July 13, 1989

TO: Directors, Part VII
Environmental Protection Act

RE: INSPECTION PRIOR TO ISSUANCE OF A USE PERMIT

It has recently been drawn to our attention that when a sewage system is installed the owner may not be aware of the requirement in subsection 67(2), Environmental Protection Act to keep the system open for inspection prior to issuance of the Use Permit.

We will be revising Ministry forms to remind all persons of this requirement. In the meantime, however, it would be advisable for Part VII Directors issuing Certificates of Approval to attach to the Certificate of Approval, an advisory/reminder along the following lines, if is not already dealt with in written material given to the applicant:

ADVISORY

Subsection 67(2) of the Environmental Protection Act provides

> "Every person who has constructed, installed, established, extended or altered a sewage system or any part thereof, shall, until a permit under Subsection (1) is issued, keep open for inspection or make available for inspection, by a provincial officer, the sewage system or the part thereof that was constructed, installed, established, enlarged, extended or altered."

DO NOT BACKFILL YOUR INSTALLATION PRIOR TO ITS INSPECTION. If you do, you will have to go to the trouble and expense of uncovering it for the inspection.

J.R. BRAY
Director

C.E. McIntyre
C.E. MCINTYRE
Executive Director
Approvals and Engineering

cc: All MOE Regional Directors
All MOE Managers - Abatement
All MOE Managers - Technical Support
All MOE District Officers
Regional Municipalities
Chairman, Local Boards of Health
Medical Officers of Health
Health Unit Directors
Health Unit Offices and Sub-Offices
Ministry of Health - Public Health Branch
Environmental Health Department - Ryerson Polytechnical Institute

Ministry of the Environment
Ontario

Ministère de l'Environnement

250 Davisville Avenue
Toronto, Ontario
M4S 1H2

250, avenue Davisville
Toronto (Ontario)
M4S 1H2

APPROVALS AND ENGINEERING

July 13, 1989

NOTICE 3/89

TO: Directors, Part VII
Environmental Protection Act

RE: THE USE OF HOLDING TANKS IN SEWAGE SYSTEMS UNDER PART VII OF THE ENVIRONMENTAL PROTECTION ACT

I am attaching for your information and guidance, a copy of the Ministry's amended policy respecting the use of Class 5 Sewage Systems (Holding Tanks). It will be noted that this amended policy, not only reflects certain of the principles currently contained in Article 4 of Chapter 11 of the "Manual of Policy, Procedures and Guidelines for On-Site Sewage Systems", but also clarifies and/or strengthens the position of the Ministry respecting the use of Class 5 sewage systems.

We would request your co-operation in the administration of Part VII, Environmental Protection Act, as it relates to the approval of Class 5 sewage systems by ensuring that this amended policy is adhered to.

Should you have any questions respecting the amended policy, I would request that you contact either Mr. D.J. Birnbaum at(416)440-3551, Mr. Brian J. Cooper at (416) 440-3568, or Mr. Alex Campbell at (416) 440-3750.

J.R. Bray, P. Eng.
Director

C.E. McIntyre, P.Eng.
Executive Director
Approvals and Engineering

cc: MOE Regional Directors
MOE Managers - Abatement
MOE Managers - Technical Support
MOE District Officers
Regional Municipalities
Chairman, Local Boards of Health
Medical Officers of Health
Health Unit Directors
Health Unit Offices and sub-Offices
Ministry of Health - Public Health Branch
Environmental Health Department - Ryerson Polytechnical Institute

BJC/es

POLICY TITLE THE USE OF HOLDING TANKS IN SEWAGE SYSTEMS UNDER PART VII OF THE ENVIRONMENTAL PROTECTION ACT

NO. 08-05-01

Legislative Authority

the Environmental Protection Act (EPA), Regulation 374/81

Statement of Principles

The purpose of this policy is to protect human health and the environment by restricting the use of holding tanks in sewage systems. Systems which use holding tanks are expensive to operate and do not constitute a sufficiently reliable system for dealing with raw sewage on an ongoing basis.

In certain circumstances, holding tanks may be allowed provided that the Municipality concerned is willing to accept the onus of taking ultimate responsibility for the disposal of contents of those holding tanks.

Definitions

Class 4 sewage system	A septic tank system.
Class 5 sewage system	A sewage system which requires or uses a holding tank for the storage or retention of hauled sewage at the site where it is produced prior to its collection by a Class 7 sewage system.

Point of Contact

Director, Approvals Branch

Effective Date

November 9, 1988

Class 6 sewage system	A sewage system in which sewage is treated in a proprietary aerobic sewage treatment plant.
Class 7 sewage system	A hauled sewage system.
Director	Persons appointed as Directors for Part VII, EPA, either from Ministry staff, or officials of Health Units.

1.0 Scope

This policy applies to proponents who require a Certificate of Approval and a Use Permit for sewage systems under Sections 64 and 67 of the EPA and to Directors appointed under Section 4 of the EPA.

2.0 Class 5 Sewage Systems Not Permitted

Directors will not approve applications for Class 5 sewage systems where the intended use is:

a) for any new commercial, industrial, institutional, or residential installation;

b) to permit the expansion of existing buildings or structures already served by a Class 5 sewage system; or

c) to permit a change in the use of existing buildings or structures where the change results in the existing Class 4 or Class 6 sewage system being rendered inadequate; or

d) for the development of undeveloped lots within a plan of subdivision registered before April 16, 1974, where the individual lots are of insufficient size to permit the installation of a Class 4 or Class 6 system.

3.0 Exceptions

Notwithstanding 2.0, Directors may permit the use of Class 5 sewage systems in the following circumstances:

a) the proposed land use is for a temporary operation (excluding seasonal recreational use) not exceeding 12 months in duration; or

b) as an interim measure for a parcel of land until municipal sewers are available, and where the municipality undertakes to ensure the continued operation of an approved Class 7 sewage system until municipal sewers are available; or

c) where the lot is in a registered plan of subdivision but the lot is of insufficient size to permit the construction of a Class 4 or Class 6 sewage system and the municipality undertakes to ensure the continued operation of an approved Class 7 sewage system; or

d) to permit the expansion of an existing single family residence which will continue as such and is already served by a Class 5 system.

3.1 Financial Assurance

Where exceptions are granted under 3.0 (a) and 3.0 (b), approval will be conditional on financial assurance being provided by proponents in accordance with the Ministry's Guidelines on the "Use of Financial Assurance".

Financial assurance, when imposed under the previous paragraph or otherwise, will be requested for the costs of such matters as pumpouts and decommissionings of systems employing holding tanks and providing connections to future sanitary sewers.

4.0 Class 5 Sewage Systems Permitted

The Director may approve applications for Class 5 sewage systems under the following conditions:

a) to solve an existing pollution problem where the correction of the problem by the installation of a Class 4 or Class 6 sewage system is not possible because there is no suitable area for such a system on the lot; or

b) to upgrade the standard of a sub-standard sewage disposal system on an existing lot, where upgrading through the use of a Class 4 or Class 6 sewage system is not possible due to lot size or dimension limitations, and where the existing use of the building or structure is to be continued.

NOTE:

Where both 2(a) and 4(a) apply unless the Director determines the waste which is not normal domestic type waste is of a nature that is suitable for treatment in a Part VII sewage system, the plumbing for such waste should be segregated and its storage and removal will be regulated under Part V of the Act.

3.1 should not be read as intending to restrict the imposition of conditions only to matters set out therein.

Ministry of the Environment
Ministère de l'Environnement
Ontario

APPROVALS BRANCH

250 Davisville Avenue
Toronto, Ontario
M4S 1H2

250, avenue Davisville
Toronto (Ontario)
M4S 1H2

440-3546 3rd Floor

August 22, 1989

MEMORANDUM

TO: All Regional Directors
(see Distribution List)

FROM: J.R. Bray
Director

RE: PART VII ENVIRONMENTAL PROTECTION ACT
ON-SITE SEWAGE SYSTEMS STATISTICS

Attached for your information are copies of the On-Site Systems Program summary report for the calendar year 1988. In this report, I have included a summary table for the provincial totals, and summary tables for each of the five regions. In addition to these tables, I have also included a comparison of the 1984, 1987 and 1988 data.

As you can see from the attached, there has been a significant increase in the number of On-Site Sewage Systems proposals received and C of A's issued. The most substantial increase this past year has been the number of applications for consent for which 20,897 applications were received for a total of 47,042 lots with 25,369 applications recommended for approval. Similar numbers for 1987 are 17,110 applications received, 28,104 lots involved in the applications and 17,050 recommended for approval. A similar trend can be seen in the data between 1984 and 1987. While the number of applications for consent has increased dramatically, the number of subdivision applications fell by about 10%. The number subdivision lots, however, increased by 10% indicating slightly larger subdivisions.

Naturally, since more systems are being put in the number of investigations has increased, as have the number of malfunctions and corrections. Whereas, the number of prosecutions has decreased by 15%.

In order to administer this program, increases in the number of required person days has occurred at all levels.

In comparison with the 1987 data, note that there is a substantial decrease in the number of Class V installations requested and approved for most regions. This is due to MOE Policy 08-05 which limits the installation of Class V systems to the correction of existing pollution problems only. Conversely, there is an increase in the number of Class IV and VI applications.

I believe that we can reasonably assume that there has been a significant increase in the workload to the Health Units in administration of the Part VII program on behalf of the Ministry of the Environment, and we at the Ministry may not always be appreciative of their efforts on our behalf. I also believe that this increase in the number of applications received will in part explain the increased number of requests for MOE assistance in reviewing applications. Furthermore, based on this data, I think a similar increase in the number of applications in 1989 can be expected.

By copy of this memorandum to all Part VII Directors in the province, I am providing them with a copy of the summary reports. In addition, I wish to extend to all Part VII Directors the Ministry's appreciation of their significant contribution of time and effort to this program.

J.R. Bray

AC/hw
Enclosures

cc: J. Reid
C.E. McIntyre
Part VII Directors
J. Clifford
D.J. Birnbaum
B.J. Cooper
OSS File

REGIONAL DIRECTORS

Mr. D. Guscott
Director
Central Region

Mr. R.C. Hore
Director
Northeastern Region

Mr. W. Scott
Director
Northwestern Region

Mr. D.A. McTavish
Director
Southwestern Region

Mr. B.I. Boyko
Director
West Central Region

Mr. A.E. Symmonds
Acting Director
Southeastern Region

REPORT ON ON-SITE SEWAGE DISPOSAL PROGRAM FOR PERIOD JAN. 1 TO DEC. 31, 19[illegible]

PROVINCIAL TOTALS*

1 SUBDIVISIONS AND SEVERANCES

a) No. of applications for subdivision reported on	463	(-7.1)
b) Total no. of subdivision lots* contained in the applications reported on	11344	(11.4)
c) Total no. of subdivision lots* recommended for approval	10683	(18.4)
d) No. of applications for consent reported on	20897	(22.1)
e) No. of lots* involved in applications for consent reported on	47042	(67.4)
f) No. of applications for consent recommended for approval	25369	(48.8)

(* List only lots for grant payments, to be served by on-site sewage systems)

2 APPROVALS AND INSTALLATIONS

CLASS OF SYSTEM	NO. OF APPLICATIONS RECEIVED		NO. OF CERTIFICATES ISSUED		NO. OF OPERATING PERMITS ISSUED	
Class 2	445	(-29.2)	422	(-27.7)	202	(2525.0)
3	8	(50.0)	8	(50.0)	7	(350.0)
4	28796	(10.4)	29815	(18.1)	19616	(4.0)
5	820	(-264.5)	824	(-207.0)	345	(-404.9)
6	326	(37.6)	289	(31.4)	155	(19.2)
7	42	(-50.0)	26	(-111.5)	18	(-127.8)
Totals	30437	(5.0)	31384	(13.6)	20343	(-0.5)

3 INVESTIGATIONS:

(A) COMPLAINTS AND (B) SANITARY SURVEYS RESPECTING PRIVATE SEWAGE SYSTEMS			
Total No. of Sewage Systems Investigated Including a + b	No. of Malfunctioning Systems	No. of Corrections Obtained Without Prosecutions	No. of Prosecutions
10327 (24.8)	2813 18.8	2195 (4.3)	46 (-15.2)

4 ESTIMATED TOTAL PERSON DAYS - PART VII ENVIRONMENTAL PROGRAM

a) Full-time inspection staff below supervisory level (office + field time)	22509.81	(17.5)
b) Full-time supervisory staff including M.O.H. (office + field time)	5722.79	(40.4)
c) Full-time secretarial staff	10697.27	(23.1)
d) Temporary staff (e.g. summer student, secretarial)	3553.90	(34.7)

________________, 19   (______) ______________   ______________________

Date   Area Code   Telephone No.   Please Print Name

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[1] Numbers in brackets indicate % change over last year

*Does not include Haliburton-Kawarthas-Pine Ridge Health Unit (Approx. 3000 C of A's)

REPORT ON ON-SITE SEWAGE DISPOSAL PROGRAM FOR PERIOD JAN. 1 TO DEC. 31, 1988

CENTRAL REGION *

1 SUBDIVISIONS AND SEVERANCES

a) No. of applications for subdivision reported on	155	(-4.5)
b) Total no. of subdivision lots contained in the applications reported on	4502	(3.5)
c) Total no. of subdivision lots recommended for approval	4639	(27.8)
d) No. of applications for consent reported on	4940	(-32.9)
e) No. of lots involved in applications for consent reported on	8713	(-20.4)
f) No. of applications for consent recommended for approval	5841	(-17.3)

2 APPROVALS AND INSTALLATIONS

CLASS OF SYSTEM	NO. OF APPLICATIONS RECEIVED		NO. OF CERTIFICATES ISSUED		NO. OF OPERATING PERMITS ISSUED	
Class 2	55	(-90.9)	48	(-100.0)	0	0
3	0	0	0	0	0	0
4	8440	(-51.7)	9199	(-32.1)	5906	(38.1)
5	140	(-156.4)	156	(-126.3)	81	(-159.3)
6	210	(51.9)	179	(48.0)	74	(51.4)
7	24	(-33.3)	11	(-181.8)	7	(-128.6)

3 INVESTIGATIONS:

(A) COMPLAINTS AND (B) SANITARY SURVEYS RESPECTING PRIVATE SEWAGE SYSTEMS			
Total No. of Sewage Systems Investigated Including a + b	No. of Malfunctioning Systems	No. of Corrections Obtained Without Prosecutions	No. of Prosecutions
3983 (5.2)	1016 (-8.8)	380 (-83.9)	9 (-66.7)

4 ESTIMATED TOTAL PERSON DAYS - PART VII ENVIRONMENTAL PROGRAM

a) Full-time inspection staff below supervisory level (office + field time)	2990.00	(-86.7)
b) Full-time supervisory staff including M.O.H. (office + field time)	558.77	(-191.2)
c) Full-time secretarial staff	1826.00	(-76.5)
d) Temporary staff (e.g. summer student, secretarial)	983.00	(-115.1)

______________, 19 (______) ______________ ______________________

Date Area Code Telephone No. Please Print Name

*Does not include Haliburton-Kawarthas-Pine Ridge Health Unit Data

REPORT ON ON-SITE SEWAGE DISPOSAL PROGRAM FOR PERIOD JAN. 1 TO DEC. 31, 1988

WEST CENTRAL REGION

1 SUBDIVISIONS AND SEVERANCES

a)	No. of applications for subdivision reported on	52	(26.9)
b)	Total no. of subdivision lots contained in the applications reported on	1333	(9.0)
c)	Total no. of subdivision lots recommended for approval	1240	(12.6)
d)	No. of applications for consent reported on	3162	(22.1)
e)	No. of lots involved in applications for consent reported on	5700	(30.1)
f)	No. of applications for consent recommended for approval	4327	(64.1)

2 APPROVALS AND INSTALLATIONS

CLASS OF SYSTEM	NO. OF APPLICATIONS RECEIVED		NO. OF CERTIFICATES ISSUED		NO. OF OPERATING PERMITS ISSUED	
Class 2	2	(50.0)	2	(50.0)	1	(100.0)
3	4	(50.0)	4	(50.0)	3	(33.3)
4	3467	(12.1)	3405	(13.2)	2780	(11.5)
5	113	(0.9)	111	(-0.9)	47	(-36.2)
6	42	(2.4)	41	(4.9)	35	(25.7)
7	1	(-300.0)	1	(-100.0)	0	0

3 INVESTIGATIONS:

(A) COMPLAINTS AND (B) SANITARY SURVEYS RESPECTING PRIVATE SEWAGE SYSTEMS

Total No. of Sewage Systems Investigated Including a + b	No. of Malfunctioning Systems	No. of Corrections Obtained Without Prosecutions	No. of Prosecutions
1666 (17.7)	806 (47.1)	789 (57.7)	17 (47.1)

4 ESTIMATED TOTAL PERSON DAYS - PART VII ENVIRONMENTAL PROGRAM

a)	Full-time inspection staff below supervisory level (office + field time)	2777.00	(4.1)
b)	Full-time supervisory staff including M.O.H. (office + field time)	880.00	(18.3)
c)	Full-time secretarial staff	1642.00	(3.8)
d)	Temporary staff (e.g. summer student, secretarial)	436.00	(49.5)

____________, 19 (______) ____________ ____________

Date Area Code Telephone No. Please Print Name

REPORT ON ON-SITE SEWAGE DISPOSAL PROGRAM FOR PERIOD JAN. 1 TO DEC. 31, 1988

SOUTHEAST REGION

1 SUBDIVISIONS AND SEVERANCES

a)	No. of applications for subdivision reported on	138	(-52.2)
b)	Total no. of subdivision lots contained in the applications reported on	2975	(29.8)
c)	Total no. of subdivision lots recommended for approval	2872	(24.2)
d)	No. of applications for consent reported on	6836	(35.0)
e)	No. of lots involved in applications for consent reported on	13324	(46.7)
f)	No. of applications for consent recommended for approval	8702	(49.5)

2 APPROVALS AND INSTALLATIONS

CLASS OF SYSTEM	NO. OF APPLICATIONS RECEIVED		NO. OF CERTIFICATES ISSUED		NO. OF OPERATING PERMITS ISSUED	
Class 2	84	(19.0)	84	(22.6)	1	(-100.0)
3	0	0	0	0	0	0
4	7515	(41.7)	8242	(46.7)	6541	(48.5)
5	247	(-495.1)	246	(-314.5)	148	(-589.2)
6	7	(-28.6)	7	(14.3)	3	(33.3)
7	7	(-28.6)	3	(-133.3)	3	(-133.3)

3 INVESTIGATIONS:

(A) COMPLAINTS AND (B) SANITARY SURVEYS RESPECTING PRIVATE SEWAGE SYSTEMS

Total No. of Sewage Systems Investigated Including a + b		No. of Malfunctioning Systems		No. of Corrections Obtained Without Prosecutions		No. of Prosecutions	
739	(8.4)	246	(50.4)	362	(24.3)	3	(-300.0)

4 ESTIMATED TOTAL PERSON DAYS - PART VII ENVIRONMENTAL PROGRAM

a)	Full-time inspection staff below supervisory level (office + field time)	12173.00	(90.5)
b)	Full-time supervisory staff including M.O.H. (office + field time)	3040.00	(88.0)
c)	Full-time secretarial staff	5555.00	(84.1)
d)	Temporary staff (e.g. summer student, secretarial)	1623.00	(78.8)

________________, 19
Date

(______) ______________
Area Code Telephone No.

____
Please Print Name

REPORT ON ON-SITE SEWAGE DISPOSAL PROGRAM FOR PERIOD JAN. 1 TO DEC. 31, 1988

SOUTHWEST REGION

1 SUBDIVISIONS AND SEVERANCES

a)	No. of applications for subdivision reported on	32	(-43.8)
b)	Total no. of subdivision lots contained in the applications reported on	886	(-90.6)
c)	Total no. of subdivision lots recommended for approval	672	(-151.2)
d)	No. of applications for consent reported on	2953	(29.7)
e)	No. of lots involved in applications for consent reported on	4627	(25.6)
f)	No. of applications for consent recommended for approval	2980	(43.5)

2 APPROVALS AND INSTALLATIONS

CLASS OF SYSTEM	NO. OF APPLICATIONS RECEIVED		NO. OF CERTIFICATES ISSUED		NO. OF OPERATING PERMITS ISSUED	
Class 2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	4081	(16.9)	3968	(15.4)	3070	(17.9)
5	134	(59.7)	130	(58.5)	33	(6.1)
6	41	(41.5)	36	(33.3)	22	(50.0)
7	5	(80.0)	5	(80.0)	5	(80.0)

3 INVESTIGATIONS:

(A) COMPLAINTS AND (B) SANITARY SURVEYS RESPECTING PRIVATE SEWAGE SYSTEMS

Total No. of Sewage Systems Investigated Including a + b	No. of Malfunctioning Systems	No. of Corrections Obtained Without Prosecutions	No. of Prosecutions
1716 (-14.6)	274 (-51.8)	265 (-110.9)	3 (-233.3)

4 ESTIMATED TOTAL PERSON DAYS - PART VII ENVIRONMENTAL PROGRAM

a)	Full-time inspection staff below supervisory level (office + field time)	2235.36	(-70.7)
b)	Full-time supervisory staff including M.O.H. (office + field time)	491.42	(-76.6)
c)	Full-time secretarial staff	756.27	(-37.3)
d)	Temporary staff (e.g. summer student, secretarial)	140.00	(36.4)

_______________, 19 ( ) _______________ _______________

Date Area Code Telephone No. Please Print Name

REPORT ON ON-SITE SEWAGE DISPOSAL PROGRAM FOR PERIOD JAN. 1 TO DEC. 31, 1988

NORTHEAST REGION

1 SUBDIVISIONS AND SEVERANCES

a)	No. of applications for subdivision reported on	44	(68.2)
b)	Total no. of subdivision lots contained in the applications reported on	912	(58.2)
c)	Total no. of subdivision lots recommended for approval	881	(70.6)
d)	No. of applications for consent reported on	1846	(57.9)
e)	No. of lots involved in applications for consent reported on	12947	(88.9)
f)	No. of applications for consent recommended for approval	2529	(61.3)

2 APPROVALS AND INSTALLATIONS

CLASS OF SYSTEM	NO. OF APPLICATIONS RECEIVED		NO. OF CERTIFICATES ISSUED		NO. OF OPERATING PERMITS ISSUED	
Class 2	286	(-22.4)	284	(-23.2)	200	(99.0)
3	4	(50.0)	4	(50.0)	4	(100.0)
4	3572	(58.3)	3499	(58.7)	606	(-64.0)
5	164	(13.4)	164	(14.6)	28	(-60.7)
6	4	(-575.0)	4	(475.0)	3	(-566.7)
7	2	(-750.0)	2	(-600.0)	0	0

3 INVESTIGATIONS:

(A) COMPLAINTS AND (B) SANITARY SURVEYS RESPECTING PRIVATE SEWAGE SYSTEMS

Total No. of Sewage Systems Investigated Including a + b	No. of Malfunctioning Systems	No. of Corrections Obtained Without Prosecutions	No. of Prosecutions
2049 (86.1)	375 (54.4)	306 (59.5)	10 (70.0)

4 ESTIMATED TOTAL PERSON DAYS - PART VII ENVIRONMENTAL PROGRAM

a)	Full-time inspection staff below supervisory level (office + field time)	880.00	(-254.5)
b)	Full-time supervisory staff including M.O.H. (office + field time)	617.00	(40.8)
c)	Full-time secretarial staff	695.00	(-90.5)
d)	Temporary staff (e.g. summer student, secretarial)	322.00	(46.9)

________________, 19
Date

(________) ________________
Area Code Telephone No.

____
Please Print Name

REPORT ON ON-SITE SEWAGE DISPOSAL PROGRAM FOR PERIOD JAN. 1 TO DEC. 31, 1988

NORTHWEST REGION

1 SUBDIVISIONS AND SEVERANCES

a) No. of applications for subdivision reported on	30	(13.3)
b) Total no. of subdivision lots contained in the applications reported on	386	(-23.3)
c) Total no. of subdivision lots recommended for approval	379	(-22.4)
d) No. of applications for consent reported on	804	(1.9)
e) No. of lots involved in applications for consent reported on	1179	(38.79)
f) No. of applications for consent recommended for approval	990	(-60.2)

2 APPROVALS AND INSTALLATIONS

CLASS OF SYSTEM	NO. OF APPLICATIONS RECEIVED	NO. OF CERTIFICATES ISSUED	NO. OF OPERATING PERMITS ISSUED
Class 2	18 (-166.7)	4 (-500.0)	0 0
3	0 0	0 0	0 0
4	1020 (4.0)	802 (17.7)	713 (-20.8)
5	14 (-128.6)	9 (200.0)	8 (-237.5)
6	22 (-59.1)	22 (59.1)	18 (-94.4)
7	0 0	3 (300.0)	3 (300.0)

3 INVESTIGATIONS:

(A) COMPLAINTS AND (B) SANITARY SURVEYS RESPECTING PRIVATE SEWAGE SYSTEMS			
Total No. of Sewage Systems Investigated Including a + b	No. of Malfunctioning Systems	No. of Corrections Obtained Without Prosecutions	No. of Prosecutions
174 (-16.1)	96 (-28.1)	93 (-23.7)	4 (0.0)

4 ESTIMATED TOTAL PERSON DAYS - PART VII ENVIRONMENTAL PROGRAM

a) Full-time inspection staff below supervisory level (office + field time)	451.70	(-110.8)
b) Full-time supervisory staff including M.O.H. (office + field time)	126.10	(3.2)
c) Full-time secretarial staff	222.60	(-53.4)
d) Temporary staff (e.g. summer student, secretarial)	49.90	(11.8)

______________, 19 (______) ______________ ______________________

Date Area Code Telephone No. Please Print Name

ON-SITE SEWAGE DISPOSAL SYSTEMS

1984-1987-1988 COMPARISONS

	1984	1987	1988
1. SUBDIVISIONS			
• No. of applications reported on	120	496	463
• Total number of lots in applications	3,144	10,187	11,344
• Total number of lots recommended for approval	2,617	9,024	10,683
2. SEVERANCES/CONSENTS			
• No. of applications reported on	8,832	17,110	20,897
• Total number of lots in application	16,541	28,104	47,042
• Total number of lots recommended for approval	8,568	17,050	25,369
3. CERTIFICATES OF APPROVAL/USE PERMITS			
• Total number of C of A's issued	17,000	27,619	31,384
• Total number of Use Permits issued	11,000	20,438	20,343

RECEIVED OCT 2 1989

#4

To All Metro area
councillors.

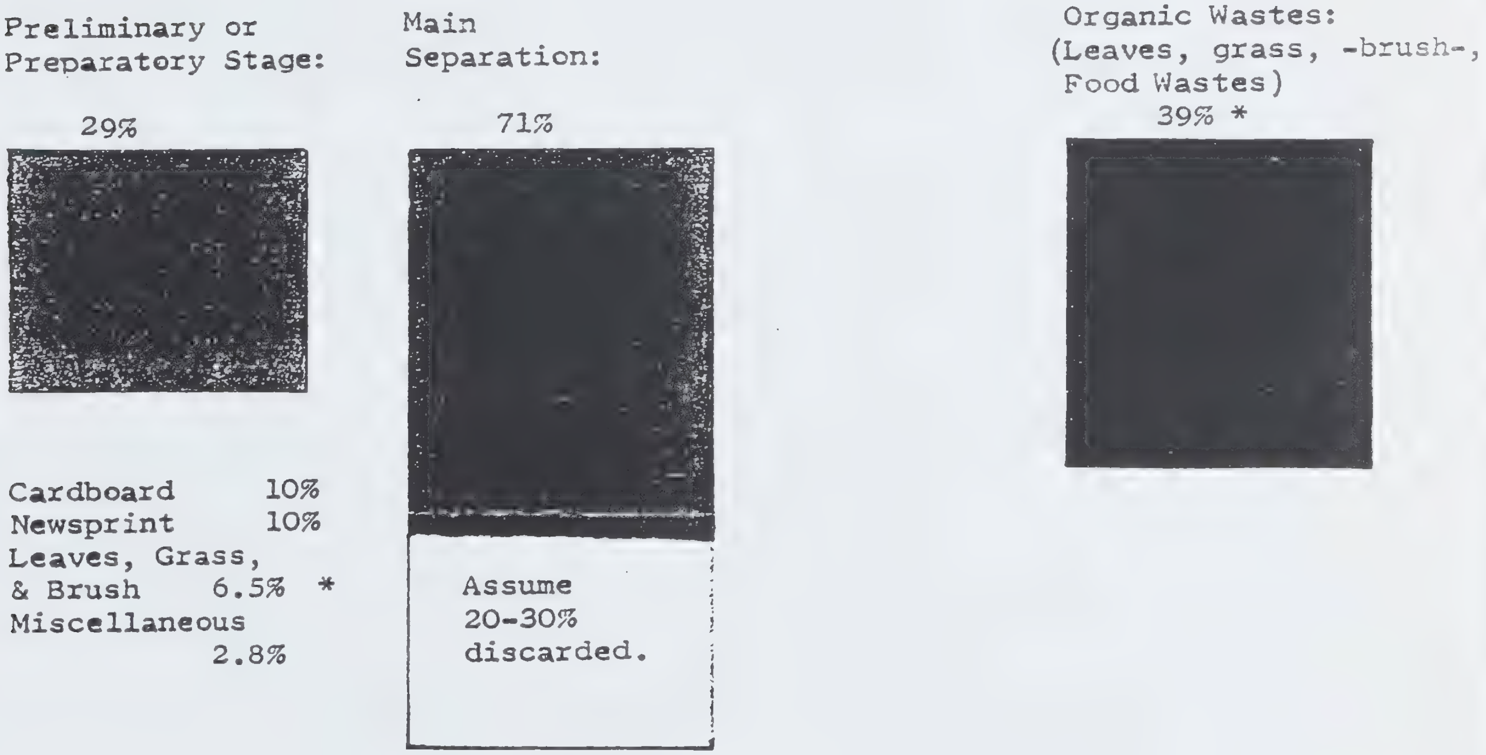
53 Hook Ave.,
Toronto,
Ontario.
M6P 1T3

Patrick McGlade
September 22 '89
Phone: 769 1868

RE: Submissions to Mr. Horgan and Mr. Ferguson, Metro Works Commissioners, concerning an industrial processing system for the processing or recycling of Household Garbage in Metro Toronto.

I would like to clarify what the process or processes are that I have requested Metro to develop.

The block diagram below illustrates the size or significance of the processing stages involved, and includes a proportional representation of the sizeable 'organic wastes' system:


Preliminary or Preparatory Stage:
29%
Main Separation:
71%
Assume 20-30% discarded.
Organic Wastes: (Leaves, grass, -brush-, Food Wastes)
39% *

Cardboard	10%
Newsprint	10%
Leaves, Grass, & Brush	6.5% *
Miscellaneous	2.8%

Food Wastes	32.4% *
Mixed Papers	20%
Glass	8%
Cans	5%
Miscellaneous	2.8%
Plastics	2.6%
Aluminum	0.5%

The request I submitted involves a segment of the "Main Separation" system shown above. This segment is the crux of the system and largely assures the viability of the complete Household Garbage processing system. The rest of this "Main Separation" system is a refinement of the process but could be handled in other ways.

It is possible the "Preliminary or Preparatory Stage" would be of interest to the private sector, with the assurance of a market for the development.

The "Organic Wastes" system development would best be done in the public sector, although some of the equipment might be developed in the private sector.

The system will recycle about 70% of Metro's Household Garbage stream, in the short term.

The main garbage handling options under consideration appear to be landfill and incineration. These options have two major disadvantages:

(1) Economic:
They both lose substantial revenues from recyclable materials: in Metro's instance, about $60 million annually, in the Household Garbage stream alone.

I expect these revenues to cover the processing costs of this system, if not in the short term, in the long term (5-10 years). In the long term, new technologies will be developed to better utilize the recoveries and improve their values.

Effectively, then, the system would save Metro or Metro businesses, the applicable tipping fees for landfill of $85-150 per tonne: or the processing, residue disposal and transportation costs of incineration systems, which **could be higher costs than landfill.**
A savings to Metro of $100 million annually would not be an unrealistic expectation, particularly if longer term factors are considered.

(2) Environmental:
Neither incineration nor landfill can ever provide an effective solution to the environmental problem: incineration, because of atmospheric toxins and residue toxins: landfill, because of surface toxicity.

My proposed system generates no toxins in its own processing, and eliminates the disposal problem on 70% of Household Garbage.

I would be glad to answer any further questions you may have about this system,

Yours Sincerely,

Patrick McGlade.

THE REGIONAL MUNICIPALITY
OF HAMILTON - WENTWORTH

Office of the Chairman

#5

October 16, 1989

Mr. P. Boldrini
91 Gibson Avenue
Hamilton, Ontario
L8L 6J9

Dear Mr. Boldrini:

Thank you for your letter of October 11, 1989 advising of the November 16th Environmental Hearing re: the OWMC undertaking in West Lincoln.

I have forwarded your letter and attachments to the members of our Environmental Issues Sub-Committee for their perusal and consideration.

Many thanks for writing.

Yours truly,

R.J. (Reg) Whynott
Regional Chairman

cc: ✓J. Ramsay, Secretary
Environmental Issues Sub-Committee

Encl.

P.O. Box 910, Hamilton, Ontario L8N 3V9
119 King Street West, 15th Floor
Tel: (416) 526-4200 Fax: (416) 577-0645

RECEIVED OCT 12 1989

Dr. P. Boldrini
Environmental chemist
(416) 549-6319

91 Gibson
Hamilton, Ont.
L8L 6J9

Oct.11,1989

Reg Whynott, Chairman
Regional Municipality of Hamilton-Wentworth
Box 910
119 King St.West
Hamilton
L8N 3V9

Dear Mr.Chairman,

The Municipal Clerks are going to receive notice of the Nov.16 Environmental Hearing on the Ontario Waste Management Corporation undertaking in West Lincoln. This now includes also planning for the transfer stations. The fact implies that in the future any Municipality may find transfer stations within its boundaries without any additional environmental hearing.

For this reason I am now contacting some potentially interested parties to see whether they are willing to join me at the OWMC hearing as public interest parties, at the conditions specified at the bottom of the encl.1 here. A few days ago I also wrote to the Chairman of the Engineering Services Committee to draw his attention on the same matter.

You will find attached two enclosures:
- an outline of the OWMC and my conditions for cooperation;
- my professional interests.

Looking forward to hearing from you, I thank in advance.

Sincerely,

P.Boldrini

P.Boldrini

/mm

2 encl.

Dr. P. Boldrini
Environmental chemist
(416) 549-6319

91 Gibson
Hamilton, Ont.
L8L 6J9

Oct.5, 1989

Councillor Terry Cooke
Chairman
Engineering Services Committee
Regional Municipality of Hamilton-Wentworth
Hamilton

Concillor Cooke,

The Regional-City Clerks are being sent notice of the incoming (Nov.13) Environmental Assessment Hearing on the Ontario Waste Management Corporation (OWMC) undetaking in West Lincoln.

I would greatly appreciate if you can put me on the agenda of the next Engineering Services Committee meeting of Oct.10. I will ask the Committee to support my application as a public interest party at the hearing. I will also explain to the Committee:

- The OWMC undertaking, which was recently expanded to include an Ontario wide network of transfer stations.
- What consequences are foreseable from this undertaking for the adjacent Cities and Regions.

I am now contacting the other Regional Municipalities in Ontario, and other potentially interested parties, offering them and seeking from them cooperation at the four conditions listed in the second half of Encl.1.

I realize that the time remaining before Nov.13 is short, but I am sure that you are aware of the importance of this hearing and of the public interest that I am trying to represent. I ask that this Region take a leading role in this matter.

Encl.2 describes my professional interest, while Encl. 3 is my C.V.

With kind regards.

Sincerely
P.Boldrini
P.Boldrini

/mm

copy to
Jack Ramsey, Secretary ESC
City Hall, Hamilton L8P 1H4
and to
Councillor Geraldine Copps

Referred to Chairman
Advisory Committee on
Environmental Issues

The ONTARIO WASTE MANAGEMENT CORPORATION (OWMC)
is a provincial Crown agency established by the Ontario Government in 1981 by the passage of the OWMC Act.
OWMC is seeking now approval under the:

Environmental Assessment Act
Environmental Protection Act
Ontario Water Resources Act
Lakes and Rivers Improvement Act
Conservation Authority Act, etc.

All of the matters related to the above Statutes will be heard by a single "consolidated" hearing by a Joint Board (Consolidated Hearing Act, 1981).
The OWMC undertaking consists of treatment and disposal facilities for up to 300 000 tonnes per annum of liquid industrial and hazardous waste at a proposed site in the Township of West Lincoln.
These facilities include:

- a physical/chemical treatment plant
- an incineration plant consisting of a rotary kiln incineration system
- a waste treatment residue solidifaction plant
- a shallow entombed landfill
- ancillary systems and facilities associated with the above
- planning program for waste collection services and transfer facilities.

My conditions for offering and receiving cooperation are:

- Neutrality-independence at the next hearing and until the end of the OWMC presentation of evidence.

- Only at that point will I be able to produce a 300-1000page conclusion on each major component of the OWMC undertaking. By then I will reach one of three recommendations: either full support, or conditional support, or no support at all.

- That the Board grant me intervenor status and that the next intervenor funding panel grant me intervenor funding to enable my participation as a party at the hearing.

- I am open to more specific suggestions, providing they reach me by the end of December. I will give special consideration to those suggestions made in the public interest and upholding at the same time the above conditions.

P. Boldrini

PROFESSIONAL INTEREST AND CONCERN

Air dispersion
Air emissions
Ecosystem approach: The Biosphere of N.Polunin/J.Vallentyne
Environmental IMPACT assessment
Hydrogeology/hydrology
Incinerator
Landfill
Modelling
Physical/chemical treatment facility
I/O qualities & quantities
Site selection
Social IMPACT analysis

GENERAL INTEREST AND CONCERN

Agriculture
Biology
Ecology
Land use
Risk assessment
Toxicology
Transportation

Economics and municipal finances are fields totally outside my interest and concern.

For the sake of modelling the OWMC undertaking is here divided into its components: incinerator, landfill, physical/chemical treatment facility, transfer stations.

Some major features of my ecosystem approach are the study of: complexity & interrelations, environmental dependence & change, community adaptation, spatial patterning, rythms, community differentiation, productivity relations, food chains & trophic levels, cycling & functional kingdoms, energy flow & steady state, succession, climax.

My handling of the ecosystem approach will follow the Polunin-Vallentyne interpretation.

CURRICULUM VITAE

Piero BOLDRINI, 91 Gibson Ave., Hamilton, Ont. L8L 6J 9; 549 6319

Born on Nov. 1, 1931; married; three children; naturalized Canadian in 1976; lived in Italy, Canada, the Netherlands, and the USA.

A. Education

Gregorio XIV College, Cremona (Italy)	B.A.jr.	1951
University of Parma, Italy	D.Chem.	1958

Graduate courses taken in Canada, France, Italy, the Netherlands, Sweden, U.K., USA. The Ph.D.equivalence was granted by AUCC and Ministère de l'Education, Québec.

B. Professional experience

Assistant Professor of chemistry, Univ.of Parma	1959-1964
Abstractor, Chemical Abstracts	1963-1966
Res.Associate, Reactor Centrum Netherland, Petten	1965-1967
Res.Associate, Univ.South Carolina, Columbia S.C.	1967-1969
Assoc.Prof.of chemistry, Université du Québec	1969-1973
Res.Scientist, McMaster University, Hamilton	1973-1974
Guest Scientist, Medical Foundation, Buffalo N.Y.	1975
Guest Scientist, McMaster Univ., Hamilton	1976-1980
Visiting Lecturer, Univ.Tübingen, Milano, Rome	1981
Environmental Consultant	1982-

C. Research Activity

Chemical physicist, 1965-67
Environmental chemist, 1982-
Medical chemist, 1975-78
Planning chemist, 1970-73
Prep.analyt.chemist,1970-73
Prep.theoret.chemist,1968-69
Theoretical chemist,1961-64;1974

D. Courses Taught

Analytical chemistry, 1970
Environmental chemistry,1985
History of chemistry,1959-64
Inorganic chemistry,1970-71
Modern mathematics, 1972
Organic chemistry, 1967
Stoichiometry, 1959-1964

E. Author

30 scientific articles in international journals;
10 environmental reports;
About 100 articles, comments, notes, talks.
I am writing three-four scientific articles on incorrect environmental analyses.

F. Membership

Academy of Medicine, Toronto
American Chemical Society
American Crystallographic Association
Assoc.Canadienne Française Advancement de la science
Chemical Institute of Canada
Società Chimica Italiana

Advocacy Group Environmentally Sensitives: scientific advisor
Centre Français Hamilton Inc.
Conserver Society of Hamilton
Consumer Association of Canada, secretary
Consumer Health Organization of Canada
Hamilton & District Multicultural Council, president

G. Languages spoken

Italian, French, English

H. ENVIRONMENTAL SCIENTIST

Water contamination	Expert in evaluation chemical analyses, I check whether their content is comprehensive in quality and correct in their quantities (mass balance calculations).
Landfill studied	Park Road in Grimsby, Upper Ottawa St. in Hamilton, two old landfills in Burlington, two in Halton, Haldimand-Norfolk.
Environmental Assessment Hearings (11)	Recycling Inc.in Hamilton, Red-Hill Creek expressway in Hamilton, Halton proposed landfills, Haldimand-Norfolk, Peel incinerator, Beeford Rd. OMB hearing, etc.
Incinerators	I gave about 20 talks-interviews on the Hamilton incinerator. I may have been instrumental in having it retrofitted. The Federal Minister of the Environement started the NITEP program with my data on SWARU. I was variously involved with other plants: Bagley (MN), OWMC, Parma, Peel.
Qualitative-quantitative-inductive thinking	I was trained and have practical experience in three types of intellectual styles and personal behaviours, corresponding to three fields in the Miller diagram. First of all, I am a scientist working in the objective-analytical field. I was also trained in analytical subjectivity; more recently I entered the holistic-subjective field.

Conserver Society
of Hamilton and District Inc.

FILE NO.
LETTER NO.
1989
READ BY

#6

October 23 1989

Mr. J. Ramsay, Secretary
Chairman's Advisory Committee on Environmental Issues
Regional Municipality of Hamilton-Wentworth
Dept. of Engineering
71 Main St. W.
Hamilton, Ontario L8N 3T4

Dear Mr. Ramsay,

Please make copies of the following three items for inclusion in the agenda for our next meeting. Thank you.

Sincerely,
Rashné Y. Baetz

Item #1: Diversion Credit – to encourage industries that divert waste from the landfill, based on the concept of the diversion credit for Third Sector Recycling. Examples:

(1) Pig Farmers: a pig farmer in Milton used to collect food waste from the University of Toronto to use as pig feed. Could we encourage pig farmers in this region to do the same for food waste from restaurants and institutions.

(2) Diaper Services: that launder cloth diapers; there are now 2 in Hamilton (Ont. Cloth Diaper Service and ABC Diaper Service).

(3) Rental Service: rents china, cutlery, glassware for meetings and parties, thereby reducing waste created by disposable plates etc.

[Continued]

A registered charitable organization. 155 James Street South, Suite 601, Hamilton, Ontario L8P 3A4

Item #2 : Agenda for our Meetings

Maybe it is time we set some definite goals for what we want to accomplish as a committee, within our terms of reference, and have more of a focus for our agendas.

Item #3: Article for the information of the committee : "Trashing A $150 Billion Business"

TRASHING A $150 BILLION BUSINESS

It's plastics. Manufacturers ignored the solid-waste crisis, and now they face bans that could be hard on them—and their customers, who include about everybody. ■ *by Stratford P. Sherman*

JUST WHEN YOU think plastics are absolutely everywhere, they turn up someplace new. Automakers, which have long used them in bodies and bumpers, now add them to engines. Before long, our homes may be made of the stuff. The U.S. produces 60 billion pounds of plastic resins annually, and sales of plastic products exceed $150 billion a year. Demand is so intense that resin producers such as Dow, Du Pont, and Mobil are operating plants up to and beyond rated capacities, and earning stupendous profits. By 2000, U.S. output will probably be up some 25% to 76 billion pounds.

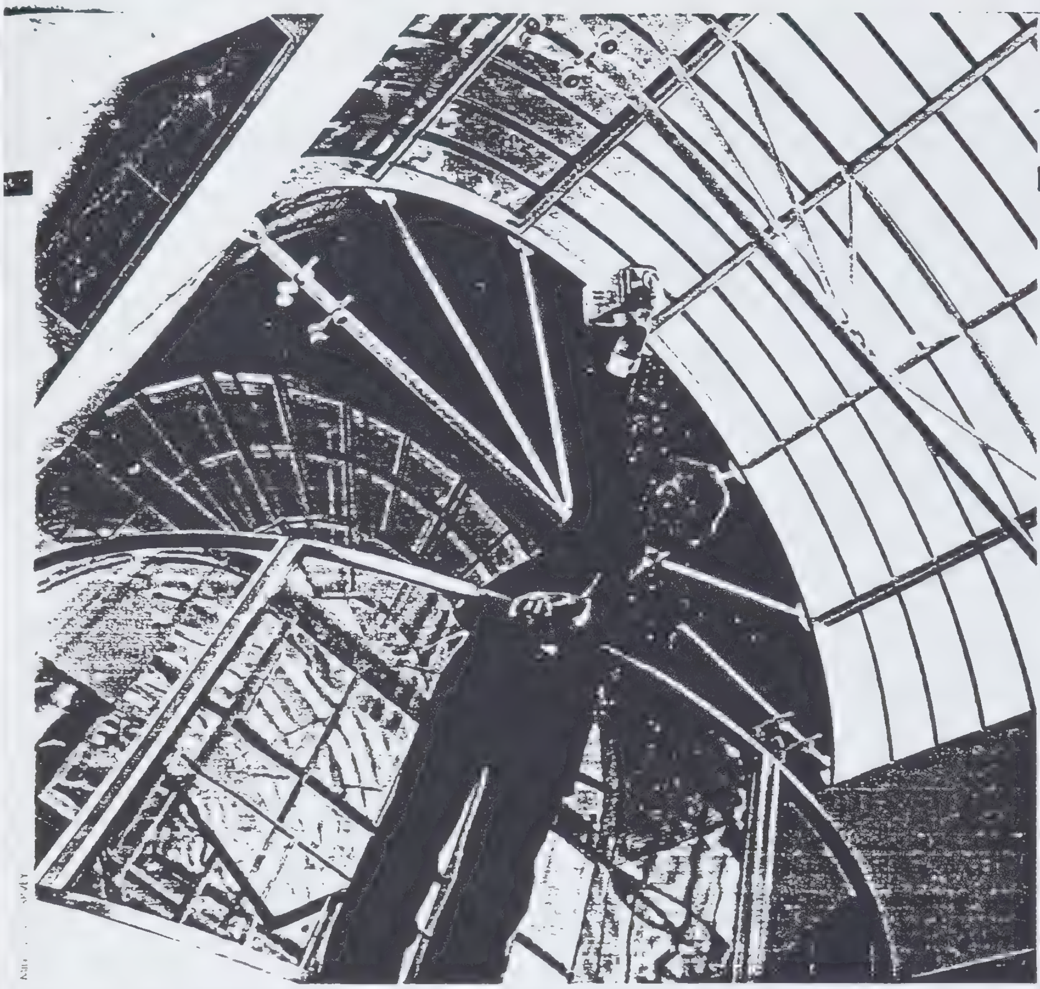
People purchase all this plastic because it does amazing things, but whether they have thought about it or not, they are also buying into a Faustian bargain: Sooner or later plastic turns into garbage, and the stuff degrades so slowly that mankind may spend eternity with the computer keyboards and microwaveable trays people buy so eagerly today. Roughly a third of all plastic is sold as disposable products with economically useful lives measured in months. Where will it all go? Americans dump 80% of their garbage in landfills; at the present rate, U.S. landfill capacity could be exhausted in a decade or two. Plastics already account for roughly a quarter of all solid waste measured by volume, vs. 40% for paper. The proportion will rise as durable products such as dishwasher liners, computer housings, and auto bumpers get junked in increasing amounts.

Rumblings from U.S. voters—an overwhelming majority of whom see plastics as the cause of the solid-waste crisis—are setting off an avalanche of legislation that could bury the plastics industry. Every business that depends on plastics, from automaking to appliances to computers to foods, risks a painful tumbling. In just the past two years, legislators at all levels have proposed over 800 laws regulating solid waste. Many of those laws specifically target plastics, through packaging taxes, degradability requirements, and other restrictions that could significantly raise the cost of making products with plastic. New York's Suffolk County, Portland, Oregon, and other communities have passed outright bans on some plastics, such as the polystyrene foam in fast-food coffee cups and hamburger clamshells.

For some operations these bans could be a matter of life and death. Procter & Gamble, for instance, buys nearly 200 million pounds of plastic annually for detergent jugs, disposable diapers, and the like. To

Producers hope recycling will mollify plastic bashers. This sea of waste in Rhode Island could become new detergent bottles or carpeting.

KEN KEBBS



GE's Uwe Wascher makes plastic rain at his headquarters in Pittsfield, Massachusetts.

cite just its most obvious exposure, P&G's $1.6-billion-a-year diaper business could be legislated away at the stroke of a pen. The 16 billion diapers Americans dispose of annually amount to over 1% of municipal solid waste. New York and Washington State defeated disposable-diaper bans, but Nebraska recently passed one; similar bills are pending in Oregon and California.

ADDRESSING the broad subject of plastics disposal, Deborah Anderson, P&G's environmental affairs chief, says, "We are very, very concerned—extremely concerned. The solid-waste issue is becoming a new consumer need." Among other efforts, the company has begun to use recycled plastics in bottles for Spic & Span, and it recently announced programs to test recycling and composting of soiled diapers.

Despite the rising tide of legislation, leaders in the plastics industry are generally optimistic—at least about the immediate political battle. To date the buckshot spray of legislation has not wounded the industry, in part because the most onerous rules have not yet taken effect. And consumers, while spouting environmentalist platitudes, continue to buy products made or packaged with plastic in unprecedented amounts.

Stoutly refusing to acknowledge the solid-waste problem as recently as two years ago, plastics producers now are scrambling to position themselves as part of the solution. They have launched a numbered coding system for containers to make them easier to sort and recycle. Richly funded industry groups such as the Council for Solid Waste Solutions suddenly are touting plastics recycling as the answer. The very idea is surprising: Plastics' recyclability has been one of the industry's best-kept secrets.

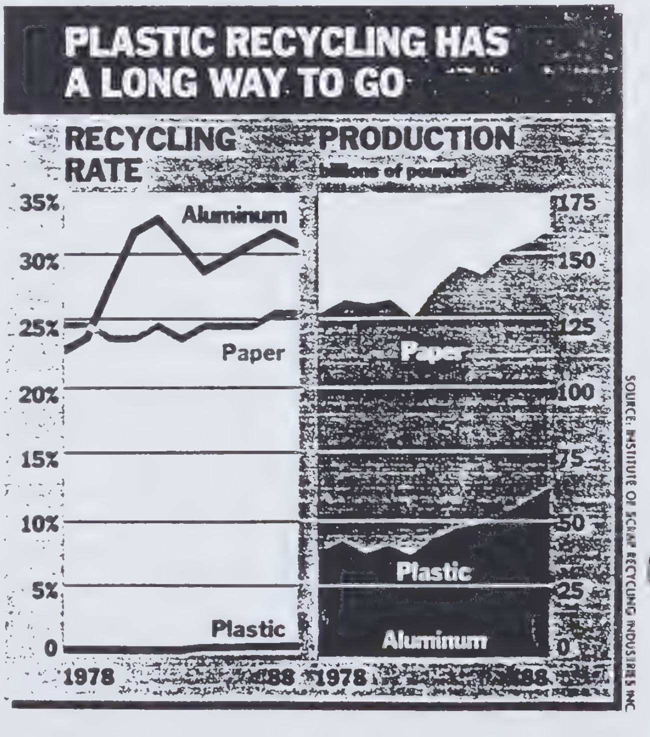
With packaging and consumer goods companies as close allies, the plastics industry is unveiling recycling initiatives at a frantic rate. In the past year, Dow, Du Pont, Amoco, Mobil, and Wellman have announced highly publicized projects to recycle plastic wastes, mainly pop bottles, milk jugs, and those throwaways made from polystyrene foam. All told, the industry will spend an estimated $40 million this year on recycling projects, up from zero a few years ago. But their efforts seem designed to influence legislators rather than solve the plastic-waste problem.

Recycling is not the only alternative for plastics disposal. A more promising option is burning it along with other garbage in waste-to-energy plants that use the heat to produce electricity for sale. Europeans and the Japanese already burn the great bulk of their garbage that way, plastics included. But these plants are so expensive and politically controversial that Americans seem unlikely to build as many as they need. One person who sees hope in this sad story is Uwe Wascher, the hyperbolic German-born marketing head of General Electric's boisterously successful plastics division. "It's wonderful!" he exclaims in heavily accented English. "Plastic is forcing us to take responsibility for the way we live!"

The problem of plastic waste is inseparable from the rest of the solid-waste issue. The Environmental Protection Agency has proposed a four-tiered agenda for managing disposal of all types of garbage in the U.S. Widely accepted by environmentalists and industrialists, it sets ambitious goals for 1992. It decidedly would not solve the plastic-waste problem—no proposal advanced so far would do that—but it would represent progress. The EPA's four goals:

- Reduce the amount of waste created by 25% through such means as reduced packaging.
- Boost the overall recycling rate to 25%.
- Incinerate 20% of the remaining garbage (vs. 9% today) in waste-to-energy plants.
- Reserve landfills for materials that cannot be burned or recycled, as well as

Reporter Associate *Charles A. Riley II*



SOURCE: INSTITUTE OF SCRAP RECYCLING INDUSTRIES INC for the often toxic ash that results from incineration.

Much can and will be accomplished toward each of these goals. But the EPA has no power to enforce the program, and market forces may even impede it. As the agency notes in its report, "Manufacturers have no direct incentive to design products for effective waste management, because they are not usually responsible for the costs of waste management."

Reason: The cost of collecting and disposing of most garbage is assumed by municipalities. In most places the cost is then passed on to taxpayers in an undifferentiated lump with other local expenses such as schools, police, and the fire department. The idea of a pay-as-you-toss system—in which haulers charge a flat fee for each bag of waste they pick up—makes sense, but only a few places, such as Perkasie, Pennsylvania, employ it. So consumers, like manufacturers, lack economic incentive to favor products that can be disposed of more easily or inexpensively than others.

The economics of disposal are muddied even for businesses that do pay garbage collectors according to the volume of waste. Rates are based on the so-called tip fees at landfills. These fees, which can reach $120 a ton where landfills are scarce, average only $27 nationwide. The cost of operating most landfills is publicly subsidized, and tip fees don't reflect the huge capital investments needed for the future. Says David Sussman, head of environmental affairs at Ogden Martin Systems, a waste-to-energy incinerator: "The true cost of disposal may be closer to $200 a ton by the year 2000, if we are going to recycle and incinerate garbage on a large scale."

THE MOST PROMISING part of the EPA agenda is waste avoidance. Whereas thrifty Henry Ford once forced suppliers to deliver parts in wooden crates that served second lives as flooring for Model T's, the auto industry now pays for $500 million of disposable packaging annually—and then spends more to burn it. McDonald's single-handedly spends an estimated $500 million annually on packaging, half of it plastic. In volumes like these, even small reductions can yield big savings. Until last year, for example, Coca-Cola syrup came to McDonald's in plastic bags encased in cardboard; now the syrup is delivered like gasoline, pumped directly from tank trucks into storage vats at stores. The savings: 68 million pounds of packaging a year.

Recycling, the next item on the EPA agenda, is particularly appropriate for plastics. At $75 to $200 a ton, the plastics for which recycling markets have developed are the second-most-valuable materials in the garbage pile (after aluminum, worth $1,000 a ton). More compelling, the stuff is made from the hydrocarbons in oil and natural gas, supplies of which are expected to run out during the next century.

But despite the industry's efforts, large-scale plastics recycling remains little more than a dream. Currently only 0.2% of plastics are recycled, vs. 11% for all recyclables combined and much more for certain materials (see chart). Americans recycle 31% of their aluminum, including 55% of aluminum cans. Robert Prioleau, recycling chief at Exxon Chemical, a two-billion-pound-a-year resin producer, says if the industry's programs succeed, they will nudge the plastics recycling rate up to only 1%.

Thrifty Henry Ford once forced suppliers to deliver parts in wooden crates that served second lives as flooring for Model T's.

Significantly boosting that rate would require a vast infrastructure of collection, sorting, and processing facilities that might cost billions. Perhaps tens of billions: No one has bothered to calculate the cost. There's no reason to, since markets for recycled plastic garbage—euphemistically called "post-consumer" plastics—generally are so modest that vast investments in recycling don't make economic sense. Large-scale plastics recycling is still focused only on a few easily collected varieties that account for a small fraction of total plastic production.

Recycling of most plastics is not a technical problem. In fact, as long as the many different kinds of plastic are kept separate from one another, it's a breeze. Just wash the stuff, grind it up, compress it into pellets, and bingo: plastics that perform almost as well as virgin resins. If better performance is required, just mix in some virgin material. Most plastics producers have been routinely recycling their own plant scrap for decades. Only 11% of plastics, a variety called thermosets, cannot easily be recycled.

The problem with recycling is in the economics. At first glance they seem promising. The only plastics for which largish recycling markets have developed—the high-density polyethylene (HDPE) used in milk jugs and the polyethylene terephthalate (PET) in pop bottles—sell for around 50% less per pound than virgin resins. But that number doesn't tell the whole story. It doesn't include the cost of collecting and separating the plastic waste, a service that municipalities normally provide. Add that cost in, says GE's Wascher, and the total cost of producing those recycled plastics is 20% *higher* than virgin resins. Towns geared up for recycling pay the cost of extracting HDPE and PET bottles from the waste stream. Most PET is collected in the nine bottle-law states (Connecticut, Delaware, Iowa, Maine, Massachusetts, Michigan, New York, Oregon, and Vermont), where consumers must pay a deposit of 5 cents or more per container; deposits are refunded when consumers return the containers to stores. In effect, consumers do the sorting and hauling for free.

SO ULTIMATELY that system works well enough for HDPE and PET, which are relatively easy for consumers to identify and separate. Municipalities are willing to pull the bottles out of the other garbage, and private businesses can recycle them economically. But what about all those other plastics—the ones in cars, refrigerators, stereos, electric pencil sharpeners, and thousands of other products? Anyone who wants to recycle those may have to pay to recover them—and the cost could make the whole enterprise a loser.

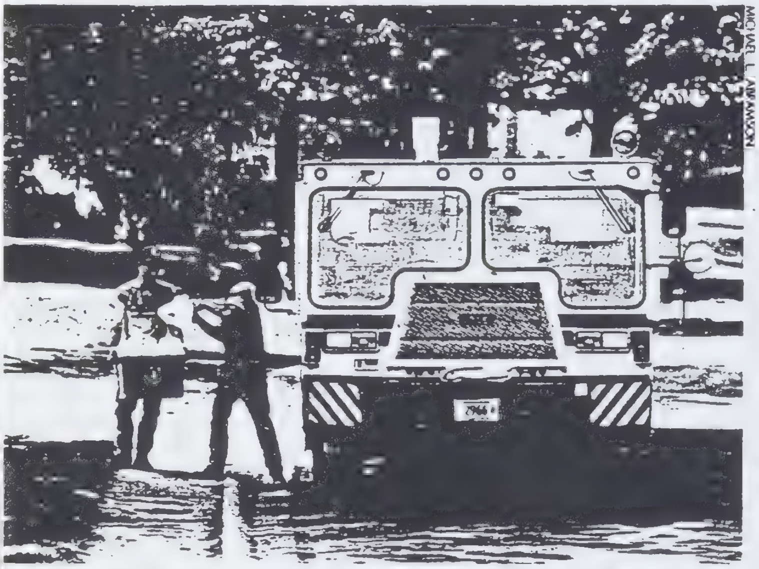
In the future municipalities may become more willing to extract other plastics from the waste stream as tip fees at landfills increase. Where tip fees are high—along the East and West coasts and around some big cities like St. Paul—communities save money by reducing the volume of garbage they send to landfills, despite the extra cost of extracting recyclables. Householders still must do the first stage of the work, segregating various kinds of garbage. Then the city or state separates the junk further. A state-of-the-art facility, such as one Rhode Island recently built, costs $4 million. Automated equipment sorts aluminum, steel, glass, paper, and plastic into separate fractions.

Then unskilled workers take on the ugly task of hand sorting different types of glass and plastic from one another. One reason garbage disposal may soon cost $200 a ton is that fully automated separation systems seem the only way to process the 250 million tons of solid waste the U.S. produces each year.

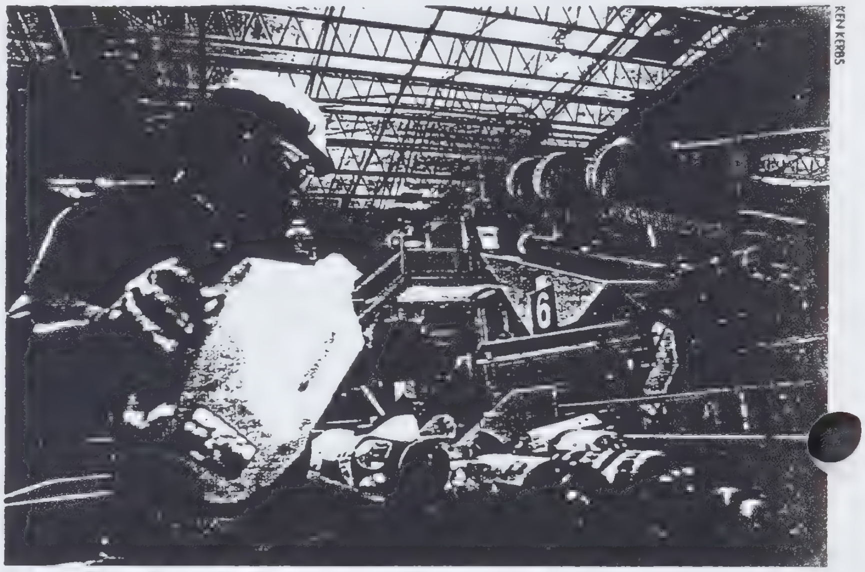
Even if government helps sort various recyclable plastics, there's another bridge to cross: creating markets for recycled plastics. It's a classic chicken-and-egg problem. Buyers are uncertain of the purity and availability of these resins. Potential vendors won't make the necessary investments unless confident of sufficient sales. GE is addressing that problem by intercepting plastic waste before it gets mixed up with other garbage. Through a subsidiary that distributes virgin resins to fabricators, GE buys back scrap from the plants it serves. Because plant scrap provides large volumes of homogeneous material, GE can profitably process and resell

PLASTICS RECYCLING, FROM GARBAGE TO GARBAGE CANS

Recycling plastics isn't technically difficult. The problem is collecting and separating different types. Only a few plastics get reused in volume, mainly those in milk jugs and soda bottles and the foam coffee-cup variety Rubbermaid uses to make garbage cans.


MICHAEL L. ABRAMSON

ton Heights, Illinois, a Waste Management truck picks up plastic.


KEN KERBS

Even in Rhode Island's up-to-date facility, workers sort plastics by hand.

KEN KERBS

ottles become usable flakes.

KAY CHERNUSH

Rubbermaid uses recycled plastic . . .

KAY CHERNUSH

. . . to make trash bins in Winchester, Virginia.

these plastics with guarantees of quality.

Du Pont is attacking the other side of the market issue. "The secret to finding markets is creating new uses for recycled plastics," says Frank Aronhalt, Du Pont's environmental affairs chief. In April the company created a joint venture to recycle HDPE and PET. Its partner is Waste Management Inc., the largest U.S. garbage hauler, which will supply the raw material. Du Pont will process the plastics, adding toughening agents, and manufacture them into new types of products, such as plastic paint cans.

Laudable as it seems, plastics recycling doesn't really solve the problem—it only delays the inevitable transformation of plastic into junk. Recycling ultimately could even make the problem worse, by soothing public concern while the volume of plastic continues to soar. Plastics executives generally believe recycled plastics will open new markets instead of displacing virgin resins in existing applications—and of course they have reason to encourage that outcome.

Wascher of GE, which produces only high-grade plastics that can be recycled many times, envisions a future in which GE might turn plastics made from its resins into generation after generation of profitable products. To facilitate collection, the company is starting to buy back used GE plastics from customers such as Digital Equipment, the computer maker, and Domino's Pizza, which ships pizza dough on plastic trays.

The resins might start their useful lives as crystal-clear milk jugs. Then GE would make used jugs into auto bumpers, and those used bumpers into an inexpensive, high-performance replacement for wood in construction. "What a fantastic profit opportunity!" Wascher exclaims, lifting his eyes heavenward. But when those buildings end their useful lives two or three decades from now, all the plastic in them will once again be junk.

THE BEST ALTERNATIVE in sight is the EPA's third goal, waste-to-energy incineration. Most plastics burn as cleanly as natural gas, producing emissions of carbon dioxide, nitrogen oxides, and water vapor. The incineration of certain plastics can cause ecological problems. Unless burned at very high temperatures, polyvinyl chloride (PVC), the plastic in pipes for plumbing, emits cancer-causing dioxins. Another 20% of plastics contain cadmium or other heavy metals that add toxins to incinerator ash. But Du Pont and Dow have found ways to stop using heavy metals, and incinerator operators claim they know how to burn PVC cleanly. One incentive to incinerate is the high energy content of plastics. A pound of plastic produces around 16,000 BTU when burned, more than any other kind of garbage and nearly twice the energy in a pound of coal.

But when outfitted with EPA-required emission controls, waste-to-energy plants are expensive to build: A typical plant might cost $300 million and handle 3,000 tons of garbage daily. Voter opposition makes siting the plants difficult except where garbage costs already are out of control. Environmentalists believe the plants contribute to the greenhouse effect, and disposing of the residual ash—equal in volume to 10% of the waste burned and usually toxic—is much more troubling and expensive than handling regular garbage. Still, Ogden Martin and Wheelabrator Technologies, which dominate the waste-to-energy business, expect their combined processing capacity to reach the EPA's target level by the 1992 deadline.

Landfills aren't much good to begin with. Contrary to popular belief, modern landfills do not promote the hasty degradation of garbage.

That capacity will still not be nearly enough to handle all the plastic Americans will be throwing away. The plants are designed to burn a typical mix of garbage, in which plastic is still a relatively small part. Waste-to-energy plants capable of burning 20% of Americans' garbage probably could dispose of less than 10% of the plastic industry's ever-increasing annual production. Significantly boosting that percentage would require another expensive new generation of plants.

So what about landfills, the subject of the EPA's fourth goal? Their usefulness is limited. Not only is capacity nearly exhausted where it is most in demand, but landfills aren't much good to begin with. Contrary to popular belief, modern landfills do not promote the hasty degradation of garbage. EPA rules designed to prevent the release of toxins perversely have eliminated most of the moisture and oxygen needed to promote biological decay.

William Rathje, a University of Arizona anthropologist whose odd specialty is landfill digs, routinely finds perfectly legible newspapers and even whole carrots that were buried decades ago. Some degradation does occur in landfills, of course, but hardly enough to justify the laws passed in Iowa and other states mandating biodegradability for plastic products. In a landfill, they won't degrade much anyway.

FOR SIGNIFICANT further progress on the plastic-waste problem, someone must figure out how to focus market forces on it. Here is a conundrum worthy of the best minds in economics: How do you transfer the cost of disposal to the users of the products that will be disposed? Until that occurs, buyers cannot differentiate among competing products, and markets can't do their good work. Subsidizing research on the question might help the plastics industry more than all its token recycling efforts combined.

One idea, already under consideration in West Germany, may win favor in the U.S. Germany's cabinet minister for the environment has suggested that automakers be required to buy back products that have reached the end of their useful lives. This way of shifting disposal costs back to the producer, who would presumably figure them into the product's price, could work for many big-ticket items, including appliances and computers.

In theory, such rules would foster changes in product design to ease disposal. GE, for example, has begun making bumpers for Ford's Taurus cars out of three plastics that retain a high value even when recycled together. Most plastic dashboards, by contrast, mix so many incompatible plastics that they can only be junked or burned.

Whatever happens politically, the issue of solid-waste disposal is certain to haunt plastics for decades. After all, the inability to manage responsibly the fruits of our invention has come to seem a basic of the human condition. Yes, there's some progress, and a little more is on the way. But no solution is in sight. In all likelihood this is a problem, like the federal deficit and the risk of nuclear war, that Americans will pass unsolved to their grandchildren. Until it is solved, it will threaten one of the richest markets in world business.

THE REGIONAL MUNICIPALITY
OF HAMILTON - WENTWORTH

Office of the Chairman

#7

October 17, 1989

Mr. Gary Herrema, Chairman
SWISC
Box 458, Adelaide P.O.
Toronto, Ontario
M5C 2J5

Dear Gary:

Thank you for your letter of October 11, 1989 regarding The Long-Term Solid Waste System for the Greater Toronto Area.

I have forwarded your letter and attachments to the members of our Environmental Issues Sub-Committee for their perusal and consideration.

Many thanks for writing.

Yours truly,

Reg

R.J. (Reg) Whynott
Regional Chairman

cc: ✓J. Ramsay, Secretary
Environmental Issues Sub-Committee

Encl.

P.O. Box 910, Hamilton, Ontario L8N 3V9
119 King Street West, 15th Floor
Tel: (416) 526-4200 Fax: (416) 577-0645

RECEIVED OCT 1 7 1989

SWISC
SOLID WASTE INTERIM STEERING COMMITTEE
Box 458, Adelaide P.O., Toronto, Ontario, M5C 2J5
Telephone: (416) 941-8373, Fax: (416) 863-0926

October 11, 1989

Mr. R. Whynott
Chairman
The Regional Municipality of Hamilton-Wentworth
Box 910, 119 King St. W.
Hamilton, Ontario
L8N 3V9

Dear Reg:

Re: The Long-Term Solid Waste System for the Greater Toronto Area

As you may or may not know, the five regional municipalities which make up the Greater Toronto Area are working together to develop a long-term solution for solid waste management. Our joint working committee, the Solid Waste Interim Steering Committee (SWISC), wishes to keep you informed of our progress and plans. In this regard, attached for your information are advertisements which we have placed nationally and internationally. These ads provide a succinct description of our activities and overall goal.

If you are interested and would like more information on SWISC and the Greater Toronto Area Solid Waste Management Plan, please contact Mr. John Farrow, SWISC Interim Chief Administrative Officer, at (416) 941-8373.

Yours very truly,

Gary Herrema
Chairman, SWISC

Att.

\oap

Advertisement

INVITATION TO SUBMIT EXPRESSIONS OF INTEREST FOR A SOLID WASTE MANAGEMENT SYSTEM FOR THE GREATER TORONTO AREA

Private and public organizations and/or individuals are invited to submit "Expressions of Interest" for the development and implementation of a long-term solid waste management system, or a component thereof, for the Greater Toronto Area (GTA). Expressions of Interest should address innovative solutions to managing the approximately 4 million tonnes of solid waste generated per annum in the Regions of Durham, Halton, Peel, York and Metropolitan Toronto which make up the GTA, the largest urban area in Canada.

SWISC will evaluate "Expressions of Interest" to identify the range of possible systems and system components which will meet Ontario provincial waste management targets and environmental controls. Respondents who demonstrate positive solutions will be issued requests for proposal in 1990.

Interested parties may obtain a copy of the call for "Expressions of Interest" by telephoning (416) 941-8373, faxing (416) 863-0926 or by writing to:

SWISC
John Farrow, Interim Chief Administrative Officer
145 King Street West, 23rd Floor
Toronto, Ontario M5H 1V8 Canada

Additional background reports are available for review at the offices of the participating municipalities, major libraries and the SWISC office, or this package of reports can be purchased for C $200.

THE CHALLENGE OF SOLID WASTE MANAGEMENT

THE CHALLENGE

There are 4 million people living in the Greater Toronto Area (GTA). While current recycling efforts deal with about 10% of the waste which is produced, about 4 million tonnes of waste requiring disposal are generated annually. That's about one tonne of solid waste (garbage) for each resident of the GTA.

Capacity to dispose of this waste is rapidly being used up. There are three key landfill sites which serve the GTA. Even with the enhanced recycling efforts which are underway to meet the provincial targets of 25% diversion by 1992, the capacity of these three key landfill sites to accept waste will soon be exhausted.

Accordingly, the Chairmen of the five regions making up the Greater Toronto Area -- Durham, Halton, Metro Toronto, Peel and York -- together with the Province of Ontario, have agreed to explore a joint approach to solving the area's solid waste problem.

THE SOLUTION

The Regional Chairmen have proposed to develop a long-term plan to jointly manage the solid waste generated in the GTA. The overall goal is to:

> through a collaborative approach, develop and implement a system for managing the solid wastes of the Greater Toronto Area, which is technically, environmentally, economically and socially sound.

It is intended that the long-term waste management system for the Greater Toronto Area be in place as early as possible and no later than 1996.

THE PROCESS

In the search for a GTA waste management system, the Solid Waste Interim Steering Committee have first called for Expressions of Interest, then will issue a Request for Proposals to develop and operate a waste management system. Once selection of a preferred waste management system is made, approvals will be obtained under the Environmental Assessment Act and other necessary legislation before implementation can take place.

The Solid Waste Interim Steering Committee is undertaking full consultation with the Regions and the public throughout the waste management plan process. As an early step in the public consultation program, workshops will be held in each GTA Region during the period October 23 to November 9, 1989. Next week, regional papers will carry notices about times and locations of meetings.

If you are interested and would like more information on the Greater Toronto Area Solid Waste Management Plan, please clip the coupon below.

YES, I AM INTERESTED IN THE GTA SOLID WASTE MANAGEMENT PLAN

__ Please add my name to your mailing list and keep me informed throughout the process.

Name ______________________________

Address ____

____

Postal Code __________________ Phone ________________________

Mail to: Solid Waste Interim Steering Committee,
Public Information Office,
720 Bathurst Street, Suite 403,
Toronto, Ontario M5S 2R4
Or call: (416) 536-0866

THE REGIONAL MUNICIPALITY
OF HAMILTON - WENTWORTH

Office of the Chairman

#8

October 18, 1989

Mr. Stan Keyes, M.P.
Hamilton West
63 John Street South
Hamilton, Ontario
L8N 2B9

Dear Stan:

Thank you for your letter of October 3, 1989 advising of your attempts to arrange for the Minister of the Environment to visit our community for discussion on the future of the Great Lakes Action Plan.

I'm certain that our Regional Task Force on Environmental Issues would appreciate the opportunity to meet with the Minister should he choose to visit and I will keep them informed of your efforts.

Thanks again for your continued co-operation.

Sincere Best Regards,

Reg

R.J. (Reg) Whynott
Regional Chairman

cc: Councillor John Prentice, Chairman
Environmental Issues Sub-Committee

✓Jack Ramsay, Secretary
Environmental Issues Sub-Committee

Encl.

P.O. Box 910, Hamilton, Ontario L8N 3V9
119 King Street West, 15th Floor
Tel: (416) 526-4200 Fax: (416) 577-0645

Official Opposition Co-Critic
Fitness and Amateur Sport

Porte-parole associé
de l'Opposition officielle
pour la Condition physique
et le Sport amateur

HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

STAN KEYES, M.P.
HAMILTON WEST

OTTAWA OFFICE
710 Confed.
House of Commons
K1A 0A6
Tel (613) 995-1757
Fax (613) 992-8356

HAMILTON OFFICE
63 John St. S.
Hamilton, Ont.
L8N 2B9
Tel (416) 577-1070
Fax (416) 577-9355

OTTAWA, October 3, 1989

Mr. Reg Whynott
Regional Chairman
Regional Municipality of
Hamilton Wentworth
P.O. Box 910
Hamilton, Ontario
L8N 3V9

Dear Mr. ~~Whynott~~ Reg::

Enclosed please find a copy of the letter I received from the Honourable Lucien Bouchard, Minister of the Environment, in answer to the invitation I extended to him and the Prime Minister to come and meet with the City of Hamilton Officials to discuss the details of the Great Lakes Action Plan.

I will keep you informed of further developments, if any. In the meantime, your comments and suggestions on the matter will be greatly appreciated.

Best regards.

Sincerely,

Stan

STAN KEYES, M.P.

ref.:oct/2/09/11 - rhw

Office of the Minister
of the Environment

CANADA

Cabinet du ministre
de l'Environnement

September 22, 1989

Mr. Stan Keyes, M.P.
Hamilton West
House of Commons
Ottawa, Ontario
K1A 0A6

Dear Mr. Keyes,

Thank you for your letter of April 7, 1989, addressed to the Right Honourable Brian Mulroney, in which you invite the Honourable Lucien Bouchard, Minister of the Environment, to go to Hamilton and meet with City of Hamilton officials to discuss details of the $125 million Great Lakes Action Plan. Please excuse the delay in my reply.

The Minister has not, at this time, made specific plans for a visit to Hamilton. When his next visit to your area is planned, however, I will certainly have his Scheduling Officer contact you to discuss arrangements for a possible meeting.

Mr. Bouchard has asked me to convey his best wishes.

Yours sincerely,

Anne-Marie Jean
Executive Assistant

c.c. Office of the Prime Minister

Ottawa, Canada K1A 0H3

CA3ONHWA25
C51C3

CHAIRMAN'S ADVISORY COMMITTEE

ON ENVIRONMENTAL ISSUES

Thursday, December 14, 1989 - 8:30 a.m.

COMMITTEE ROOM 15TH FLOOR, ELLEN FAIRCLOUGH BUILDING

AGENDA

1. (i) Minutes of Meeting - November 9, 1989
   (ii) Business Arising from minutes.

2. Brenda Axon, Vice-Chairman of The Halton EEAC Committee to advise the Committee on how their Committee works.

3. Presentation by Jim Taplay on Chlorofluorocarbons (CFC's) 20 minute slide presentation.

4. Environmental Conference of 1990

   A draft outline attached.

5. Letter from R. Muldoon, R. Baetz, and B. McHattie on the reporting aspect of this Committee and a document titled "Promised And Reality Which Outlines The Results Of A Workshop On Environmental Advisory Committees".

6. Letter from R. Baetz in connection with:

   (1) Household hazardous waste disposal
   (2) Effluent draining from Tricil vehicle.

7. Looking Ahead To A Critical Decade

   (i) An Environment Strategy for Ontario - a research project of the Conservation Council of Ontario in support of an Ontario sustainable development strategy.

   (ii) Ontario round table on Environment and Economy.

   For the information of the Committee.

8. The establishment of an ecological and Environmental Advisory Committee.

   For the information of the Committee.

Dec. 14.

Cont'd...

Ruth Greenwood
Hamilton Public Library
Urban Municipal Collection, 2nd Floor
55 York Boulevard
Hamilton, Ontario
L8R 3K1 (PI)

9. Purchasing's environmental rule.

For the information of the Committee.

10. Home Composting Program

Recommendations

That:

i) The Commissioner of Engineering be authorized to order 5,000 "Soilsaver" compost units from Barclay Horticultural Manufacturing Ltd. at a cost of $49.37 per unit.

ii) The "Soilsaver" compost units be offered for sale to Regional residents at $15.00 per unit.

For the Information of the Committee.

UNFINISHED BUSINESS:

OTHER BUSINESS:

#1

CHAIRMAN'S ADVISORY COMMITTEE
ON ENVIRONMENTAL ISSUES

The Chairman's Advisory Committee on Environmental Issues met on Thursday, November 9, 1989, at 8:30 a.m., Ellen Fairclough Building, 15th floor, Committee Room, Hamilton.

PRESENT:

Councillor J. Prentice	Chairman
Councillor H. Merling	
Paul Muldoon	Hamilton Environmental Action Team
Rashne Baetz	Conserver Society of Hamilton District
Brian McHattie	Hamilton Naturalist Club
Prof. Keith Murphy	McMaster University
Ray Steward	Ministry of the Environment
W. Pedder	International Union of Operations Engineering Local 793
J. Barr	Planning and Development Department
S. Spencer	Regional Municipality of Hamilton-Wentworth

ALSO PRESENT:

C. Donaldson	Planning and Development Department
D. Edwards	Legal Services
J. Taplay	Specialisting Home Air Conditioning

1. It was moved by Prof. K. Murphy and seconded by B. McHattie that the minutes of the meeting of September 14, 1989 be approved as amended.

   Under item 5 "Environmental Purchasing" is was indicated that the minutes should be corrected by adding reuseable items such as laundry items etc., and also that the word reusable be used rather than recyclable.

2. Presentation by John Barr and Carol Donaldson on Environmental Issues Being Reviewed by the Planning Department

   Mr. Barr indicated some of the items being reviewed are:

   The Regional Official Plan
   Housing/Environmental Plan in relationship to policies
   Concepts of sustainable development.
   Social Development Plan

   Mr. Barr indicated that a draft plan State of the Environment Report is in the hands of the Regional Chairman at the present time.

   Key Issues being reviewed:

   - Environmental Inventory
   - Natural Woodlots

- Remedial Action Plan
- Water Shed Study
- Water Courses Leading to the Harbour

Mr. Muldoon asked if the draft paper on the above subject was available to the public and Mr. Barr indicated that at the present time it is an internal document.

Mr. McHattie indicated that this Committee should review the policy on Sustainable Development before it is made public.

Mr. Muldoon suggested that this Committee should review all documents in connection with the Environment prior to them becoming public.

Prof. Murphy agreed that this Committee should see any of this type of information before it is made public.

It was moved by B. McHattie and seconded by Prof. Murphy that the Planning Department supply background on the Sustainable Development and State of the Environment Reports for this Committee.

Mr. Spencer asked if this information is public.

Mr. Barr indicated that the information is not public at the present time.

3. Approval of Unclassified/Unregulated Part VII, EPA Sewage Systems

Mr. Stewart indicated that in certain areas septic tanks are being used for holding wastes other than sanitary sewage. He advised that where ever this takes place, it should be approved by the Ministry of the Environment.

Councillor Prentice suggest that a map should be prepared that shows all industries and what types of industrial waste could be left in the soil after that industry has vacated the property.

Mr. Muldoon wanted to know if there was a "Right-to-Know" By-Law that would cover the above concerns. It was suggested that Legal Services review this item.

Mr. Stewart indicated that priorities should be placed on the present us of septic tanks being used for industrial waste.

Mr. McHattie indicated that the WHMIS Programme By-Law requires that all industries must indicate there inventory on hazardous waste products etc. Also, the Fire Department and Medical Officer of Health should be aware of where these hazardous wastes are being stored.

Mr. Spencer indicated that the Parcels Pilot Project, being implemented at the present time, could eventually identify the areas where hazardous wastes are stored. Maps will show the required information and it will also be recorded in a computer format.

Mr. Spencer indicated that four additional staff where being hired to enforce the Industrial Waste Discharge By-Law, and also the MISA Program contains the agreement required to cover the enforcement. The staff will be able to actually enforce the By-Law by ticketing industries on the spot.

Mr. Pedder suggested that scrap dealers, and similar types of operations, spill many gallons of contaminants on the soil on a daily basis.

Councillor Prentice requested Mr. McHattie to see if he could find information on a "Right-to-Know" By-Law and bring it back to our next meeting.

It was moved by Prof. Murphy and seconded by R. Baetz that the information be received.

4. Industrial Processing System for the Processing or Recycling of Household Garbage in Metro Toronto

It was moved by R. Stewart, seconded by H. Merling that the information be received.

5. Letter from Dr. P. Boldrini on a notice of the November 16, 1989 Environmental Hearing on the Ontario Waste Management Corporation undertaking in West Lincoln. For support of his application as a public interest party at the hearing.

Mr. Spencer indicated that Ontario Waste Management Corporation is protecting the interest of the general public.

It was moved by H. Merling and seconded by P. Muldoon that the information by received.

6. Letter from R. Baety on diversion credit.

Rashne Baetz suggested we could contact pig farmers and suggest that they gather discarded food wastes from institutions to feed their animals.

Mr. Spencer indicated that the Region prepares a news letter twice a year on Waste Management Projects and he indicated that if the conservative society could prepare an article on diaper services and dish rental services, that this material could be inserted in the news letter.

Mr. Spencer indicated that bonuses to industries to help subsidize their operations is in contravention of the Municipal Act. It was suggested that Legal Services review this issue.

It was proposed by R. Baetz that the Engineering Department study the possibility of providing a diversion credit (perhaps partially funded by the Ministry of the Environment) to services that reduce the amount of waste requiring disposal such as:

1. Pig farmers who could use food waste from institutions and restaurants.
2. Diaper services that reduce the amount of disposable diaper discarded.
3. Dish rental services - that rent and clean dishes for gatherings, reducing the amount of disposable plates discarded.

It was moved by R. Baetz and seconded by B. Pedder.

R. Baetz suggested that this Committee should try and get back to the original Terms of Reference.

Prof. Murphy suggested that this Committee review whether or not this Committee has a dual role with Engineering and Planning.

Mr. Spencer indicated that he will review with the Engineering Services Committee Chairman what items should come to this Committee prior to the item going to the Engineering Services Committee.

Councillor Prentice advised that plastics are being shipped to New York State at the present time for recycling.

Mr. Spencer indicated that plastics will be picked up, along with other recyclable items, in the New Year.

Councillor Prentice advised that approximately 250 homes in Dundas, along with the help of the Glad Garbage Bag People are doing a special study project on a trial basis in connection with the Blue Box Programme (using garbage bags rather than the blue boxes).

Mr. Spencer advised the Committee that the Region is purchasing 5,000 soil saver unit for composting and he is proposing a delivery date for these units of April 1, 1990.

Mr. Baetz indicated that maybe the soil saver units are not the best units to be purchased, and that we should review other units. Some of these units may work as well or better. A report will be prepared for our next meeting.

Prof. Murphy asked Mr. Spencer if the Department had reviewed the different types of units. Mr. Spencer indicated that the Region has a staff person that sits on a Committee with other area Municipalities and the consenses was that the soil saver unit was the best unit.

It was moved by R. Baetz and seconded by Prof. Murphy that action be taken where necessary.

7. The Long Term Solid Waste System for The Greater Toronto Area

It was moved by P. Muldoon and B. McHattie that this item be received for information.

8. Letter for Mr. Stan Keyes M.P. in Regards to an Invitation to Meet with Hamilton Officials on the Great Lakes Action Plan

It was moved by P. Muldoon and seconded by W. Pedder that this item be received for information.

9. Environmental Conference of 1990

A draft outline of this Conference was distributed to the members and it was suggested that it be tabled to be reviewed by the members for the next meeting.

Prof. Murphy indicated that a key note speaker should speak on local issues.

It was moved by R. Stewart and seconded by W. Pedder.

NEW BUSINESS

10. Business and Environment Profit or Peril Seminar

It was moved by P. Muldoon and seconded by R. Baetz that the information be received.

11. Mr. Taplay, specialist in home air conditioning, spoke to the members on the effects of CFC being released to the atmosphere. He also supplied the members with a report. It was suggested that the members review the report and that Mr. Taplay be invited back to our next meeting to answer questions.

It was moved by P. Muldoon and seconded by R. Stewart that the information be tabled until next meeting.

This meeting adjourned at 11:15 a.m.

John L Ramsay

Jack Ramsay
Secretary

#3

Controlling CFC's in the City of Toronto:

A Role for Local Government

Environmental Protection Office, Toronto Department of Public Health.

The City of Toronto has embarked on an initiative to ensure that ozone-depleting chlorofluorocarbons (CFCs) contained in consumer and commercial products are recovered prior to servicing, repair and disposal of CFC-containing products where feasible. Other initiatives include a restriction on the manufacture and sale of CFC-based products where alternatives exist, and the requirement that CFC-using industries located within the municipality rigorously minimize CFC emissions. A by-law to control CFC emissions was prepared by the Legal Department in conjuntion with the Department of Public Health's Environmental Protection Office, and was passed by Toronto's City Council on April 6, 1989. Implementation of the CFC by-law is awaiting approval from City Council for the funds necessary to create a special team within the Health Department to administer the by-law. This paper examines the importance of controlling CFC emissions, provides a role for local government in ozone protection, and gives an overview of the City of Toronto CFC reduction strategy, including its proposed by-law.

Destruction of the Ozone Layer

The production, use, and disposal of CFC and halon-based products results in the release of these compounds into the atmosphere, where they can persist for a hundred years or more. CFCs and halons are stable in the lower atmosphere, however, as they migrate upward towards the ozone layer, the intense ultraviolet radiation at this level causes CFCs and halons to release chlorine and bromine atoms, respectively. A single chlorine or bromine atom can cause the destruction of thousands of ozone molecules before it is rendered inactive.

The gradual destruction of the ozone layer permits more harmful ultraviolet-B (UV-B) radiation to reach the earth. An increase in UV radiation is predicted to result in an increase in the incidence of skin cancers, eye disorders and susceptibility to infections. Furthermore, the accumulation of CFCs and halons in the atmosphere contributes to global warming known as the greenhouse effect by trapping much of the heat at the earth's surface that would otherwise radiate out into space.

Uses and Control of CFCs and Halons

Based on 1987 data, the major uses of CFCs in Canada were as refrigerants (43%), blowing agents in the manufacture of plastic foam products (34%), aerosol propellants (12%) and solvents (8%).

Very recently, many Canadian manufacturers have shifted production of foam packaging and aerosol cans to methods that avoid the use of CFCs altogether or that use "soft" CFCs (HCFCs). "Soft" CFCs have a much lower potential to destroy the ozone layer than the "hard" CFCs currently in use.

Although "soft" CFC alternatives exist that are suitable for the manufacture of many plastic foamed products, alternative CFCs will not be commercially available for refrigeration applications for at least five years. Time is required to complete toxicological testing on alternative coolants, to produce commercial quantities of the approved substitute coolants, and to redesign and manufacture new refrigeration system that can use the new refrigerants. In the meantime, the use of CFCs is essential for the functioning of household and commercial refrigerators, freezers, air-conditioners and centralized cooling systems.

Halons are used primarily in total flooding fire extinguishing systems in computer rooms and telephone exchanges to protect electronic equipment. The largest source of halon releases is during the testing of total flooding systems. Alternative methods and less-ozone depleting chemicals are now available for testing purposes.

There are three major strategies to reduce CFC and halon emissions into the atmosphere. These are:

- Substitution with non-or less-ozone depleting products.
- Reduction of CFC losses during product manufacture and use.
- Recovery, recycling and disposal of CFCs and halons prior to product servicing and disposal.

A Role For Municipal Government

Destruction of the earth's protective ozone layer is a global problem that requires both global and local solutions. An international agreement signed in 1987 pledges all signatory countries, including Canada, to reduce atmospheric releases of "hard" CFCs by 50 percent by 1999. These national and international initiatives are essential to protection of the ozone layer and are to be lauded, accelerated and implemented. However, cutbacks in the production of CFCs address only a part of the problem. Each year of continued production contributes to the overall inventory of CFCs "banked" in products. It is desirable that production quotas be accompanied by clear strategies for recovering, reusing and eventually disposing of CFCs and halons still in use.

An important role for municipal government is to ensure that CFCs and halons contained in consumer and commercial products are recovered prior to servicing, repair and disposal of the products that contain these chemicals. Another important municipal intiative is to ensure that CFC-using industries located within the municipality rigorously minimize CFC emissions. Local government has an important role in setting an example to the community by avoiding the purchase of CFC-based products where possible. Furthermore, the municipality can engage in a public education program to inform the public and the industrial community of what they can do to protect the ozone layer.

The Environmental Protection Office released a report in November 1988 entitled A Chlorofluorocarbon Reduction Strategy For Toronto. This report identified regulatory and nonregulatory mechanisms to curtail CFC and halon emissions in the City. The report was instigated because of City Council's request for a CFC by-law. Councillor Tony O'Donohue first introduced the idea of a CFC by-law to Toronto's City Council.

Toronto's CFC By-Law

Toronto's CFC by-law is "technology forcing" in that it will create a regulatory climate in which CFC and halon using establishments will be required to put in place appropriate control technologies and a CFC/halon recovery infrastructure. The infrastructure to collect, recycle and/or dispose of most CFCs is poorly developed at present in Toronto, as elsewhere in Canada. The dates at which specific clauses of the by-law come into effect are staggered to permit establishments sufficient time to meet the stringent conditions of the by-law. Adequate lead time is required to permit CFC users to purchase and install recovery equipment. The recipients of recovered CFCs and halons also require time to set up commercial-scale recycling and disposal facilities. Highlights of Toronto's CFC by-law are summarized below. Each regulatory measure described comes into effect in the number of months indicated in brackets, counting from the date of passing of the by-law by City Council and approval of funds to implement the by-law:

- Mandatory registration of CFC and halon users in the City (3 months).

- Prohibition on the use of halons in testing fire extinguishing systems (3 months).

- Prohibition on the manufacture of CFC-based products unless no alternatives exist to the use of CFCs (12 months).

- Prohibition on the manufacture and sale of aerosol cans containing CFCs (12 months}.

- Prohibition on the manufacture, sale and installation of CFC-based building insulation (12 months).

- Mandatory submission of CFC and halon audits by user industries (12 months).

- Mandatory recovery of CFCs and halons prior to product repair and servicing (18 months).
- Mandatory recovery of CFCs and halons prior to product disposal (18 months).

The Environmental Protection Office has prepared a three year by-law implementation plan. The goal of the implementation plan is an 80 percent reduction in CFC emissions in the City of Toronto. Implementation of the by-law is estimated to cost $200,000 per year for a three year period and would result in the formation of a CFC team comprised of three professional staff knowledgeable in pollution control. Once industry has put in place control technologies and CFC recovery infrastructure over the next three years, it is likely that staffing requirements for the enforcement of the by-law will be greatly diminished.

Nonregulatory Initiatives

The Toronto Department of Purchasing and Supply has revised its product specifications to avoid the purchase of CFC and halon-based product where alternatives exist. Furthermore, these products specifications require refrigerant servicing contracts to ensure the use of refrigerant recovery systems for City-owned buildings.

The Department of Public Works, in consultation with the Department of Public Health, is investigating a pilot project to establish the technical and economic feasibility of CFC/halon recovery from household items such as refrigerators, freezers and air conditioners. It needs to be determined whether such household products discarded at curbside still contain CFCs and whether they are recoverable.

The Department of Public Health has prepared an educational strategy designed to inform the business community on how to achieve compliance with the proposed by-law. In addition, educational materials will be distributed to the public to inform them of what they can do to reduce CFC and halon emissions.

Provincial and Federal Initiatives

In February 1989, the Ontario Minister of the Environment tabled a bill in the Provincial Legislature that prohibits the manufacture, sale and use of CFC-based aerosol cans and packaging as of July 1, 1989. In addition, the Minister published a schedule of activities that his Ministry intends to undertake in the future to control CFC and halon emissions further in Ontario. At the same time, the federal Minister of the Environment announced his intent to issue draft national regulations to curb CFC use by more than 85 percent by 1999. Previously, he had been committed to reduce Canadian CFC consumption by 1999 to 50 percent of the 1986 levels. In addition, the federal Minister published a schedule of projected prohibition dates for various CFC products.

In contrast to the federal and provincial initiatives, the City of Toronto's by-law emphasizes the recovery and recycling of CFCs prior to product servicing and disposal. At the present time, neither the federal nor the provincial initiatives require mandatory recovery of CFCs prior to product servicing or disposal. The City of Toronto's initiative with respect to CFC recovery provides a unique yet complementary role for municipal government to undertake. The product prohibition clauses of Toronto's by-law overlap with the federal and provincial governments recent announcements on the intent to regulate these CFC-containing products. Stringent uniform national regulations are desirable, however, until such national or provincial regulations are in place, Toronto wishes to take a leadership role by establishing high environmental standards within the City to accelerate restoration of the ozone layer.

Copies of the By-law No. 230-89 may be obtained from the Environmental Protection Office, 12 Shuter St., Toronto, Ontario, M5B 1A1. Phone 416-392-6788.

DRAFT BY-LAW

No. -88 A BY-LAW

To prohibit and regulate the manufacture, sale, distribution, use and disposal of certain products, material, and equipment containing or manufactured with chlorofluorocarbons and halons.

(Passed 1989.)

Whereas the Council of the City is of the opinion that the destruction of the ozone layer of the earth's atmosphere is caused in part by the action of ultra-violet rays on certain synthetic chemicals known as chlorofluorocarbons and halons;

And Whereas the depletion of the ozone layer will allow excess ultra-violet rays to reach the earth's surface, which may cause serious irreparable damage to all living tissues;

And Whereas such chemicals are found in various manufactured products, material and equipment including such items as certain refrigerators, air-conditioning and cooling systems, rigid foam insulation, certain flexible foam materials, cleaning solutions and packaging for food and other matter;

Therefore the Council of the Corporation of the City Toronto enact as follows:

1. In this By-law,

(a) "City" means the City of Toronto;

(b) "Chlorofluorocarbons" means one or more of the following substances:

Trichlorofluoromethane	(CCl_3F)	known as	CFC 11
Dichlorodifluoromethane	(CCl_2F_2)	known as	CFC 12
Trichlorotrifluoroethane	($C_2Cl_3F_3$)	known as	CFC 113
Dichlorotetrafluoroethane	($C_2F_4Cl_2$)	known as	CFC 114
Chloropentafluoroethane	(C_2F_5Cl)	known as	CFC 115

(c) "dispose" means to dispose for the purpose of garbage, refuse, or for destruction, and not for re-use;

(d) "halons" means one or more of the following substances:

difluorobromochloromethane	(CF_2BrCl)	known as	halon 1211
trifluorobromomethane	(CF_3Br)	known as	halon 1301
tetrafluorodibromoethane	($C_2F_4Br_2$)	known as	halon 2402

(e) "sell" means to offer for sale, expose for sale, have in possession for sale and distribution, whether or not the sale or distribution is made for consideration.

2. No person in the City shall manufacture any product or equipment which contains and emits or could emit chlorofluorocarbons or halons or both into the atmosphere, unless

(1) there is, at the time of manufacture, no alternative to the use of the chlorofluorocarbons or halons, and there exists in connection with such manufacture, a properly operating recovery system for the chlorofluorocarbons or halons; and

(2) an audit for chlorofluorocarbons and halons has been conducted in accordance with Section 11.

3. No person in the City shall manufacture products or equipment containing chlorofluorocarbons or halons that can be drained or recovered from the product or equipment unless the product or equipment is equipped or designed so as to permit the proper installation or use for its intended purpose without leakage of the chlorofluorocarbons or halons.

4. Every person in the City who disposes of any product or equipment that contains chlorofluorocarbons or halons in a form which can be drained or recovered from the product or equipment shall only dispose of such product or equipment

(1) by delivering such product or equipment to a recovery site established by the City or authorized by the Council of the City;

(2) by delivering such items for municipal garbage disposal in accordance with garbage recovery systems established by the City;

(3) by ensuring that prior to disposal, the chlorofluorocarbons and halons contained therein are drained and recovered from the product or equipment and thereafter transported intact to a recovery site established or authorized by the City.

5. Notwithstanding Section 4, no person in the City shall dispose or permit the disposal of any vehicular air conditioning unit containing chlorofluorocarbons unless the chlorofluorocarbons are removed prior to such disposal.

6. No person in the City shall service or repair or permit the servicing or repair of any air conditioner, air conditioning equipment or system including any vehicular air conditioning system, chiller, refrigerator, freezer, refrigerating or cooling equipment or system, unless such person ensures that any coolant containing chlorofluorocarbons is not vented to the atmosphere during the servicing or repair process.

7. No person in the City shall sell or install any rigid foam material for building insulation that contains chlorofluorocarbons or with respect to which chlorofluorocarbons are used as a blowing agent during the manufacturing process.

8. No person in the City shall manufacture or sell any aerosol container that uses chlorofluorocarbons as a propellant, except aerosol containers of products used for medical purposes.

9. No person in the City shall test or service any fire extinguisher or fire extinguisher system if such test or servicing causes or could cause the release of halons into the atmosphere.

10. No person in the City shall manufacture, distribute or sell any plastic foam material or any other product or material containing chlorofluorocarbons or for which

chlorofluorocarbons have been used as a blowing agent during the manufacturing process, for the purpose of packaging, wrapping or containing edible or non-edible products.

11. Every employer in the City where the business activity includes the handling and use of chlorofluorocarbons or halons in furtherance of the business activity, shall

(1) within three months after the passing of this by-law, register a notice with the Medical Officer of Health identifying the quantity, types and use of chlorofluorocarbons and halons in the business activity;

(2) within one year after the passing of this by-law, conduct and submit an audit to the Medical Officer of Health which sets out a material balance of the chlorofluorocarbons and halons used in the business activity, and identifies the methods used for recovery and reclamation of the chlorofluorocarbons and halons.

(3) if such business activity is commenced after the one-year period referred to in subsection (2), register the notice required by subsection (1) and submit the audit required by subsection (2) to the Medical Officer of Health at the time of commencing operation of the business activity.

12. This by-law shall come into force upon the date of passing, except

    (1) Section 9, which shall come into force three months after the date of passing;

    (2) Sections 2, 3, 7, 8 and 10, which shall come into force twelve months after the date of passing; and

    (3) Sections 4, 5 and 6, which shall come into force eighteen months after the date of passing.

13. Any person who fails or neglects to perform any duty imposed in this by-law or who contravenes any provision of this by-law is guilty of an offence and liable to a penalty of not more than $2,000.00 exclusive of costs for each offence.

November 3, 1989

Mr. R. Whynott,
Regional Chairman,
The Regional Municipality of Hamilton- Wentworth
119 King Street West,
P.O. Box 910,
Hamilton, Ontario.
L8N 3V9.

Dear Mr. Whynott

Thank you for your August 16/89 response to my August 14th letter. I appreciate that a man of your abilities and judgement would not make factual errors as contained in your letter unless you are still continuing to receive questionable advice from your staff. I had hoped that with a lawyer of such obvious capabilities as Mr. Anderson advising you, Regional Councillors would become better informed as to the Apprenticeship Act. In regard to stratospheric ozone depletion, it is hard to imagine that any politician at any level could remain unaware of this crisis with so much media coverage of the impending disaster.

There appears to be little use in repeating what has been said in previous correspondence. It seems that staff and politicians have their own agenda and will not hear any contrary information. I will briefly cover the points in your letter making reference to what is not factual, where I differ in opinion, and requests that remain unanswered or to which a response would be appreciated.

1. Depletion of the Ozone Layer

Bill 218 has not, is not now, and probably will not have any effect for several years on needless venting by persons working with CFCs..

You do have the authority to make a difference in 1990 by utilizing your present power from the province to regulate trades that has resulted in the present by-law.

Enforcement of schedule "4", 3. (d) and 7. (d) of by-law B88-136 would be very beneficial to the environment.

Toronto has passed a by-law to regulate use of CFCs. on April 6th 1989. If they have obtained power to act, why can Hamilton Wentworth not do so as well? They also have a separate environment branch working within their Health Department.

Could I please have a copy of the report from the Medical Officer of Health when you receive it ?

2. Control of Unqualified Tradesmen

Regulations of the Apprenticeship and Tradesmens Qualification Act REQUIRE WORK ON A RESIDENTIAL CENTRAL AIR CONDITIONER TO BE CARRIED OUT BY A QUALIFIED REFRIGERATION AIR CONDITIONING MECHANIC.

Both Ray Plante (who drafted the by-law) and Mr. Brien Allick were told this fact by representatives of the former Ministry of Skills Development in my presence and before other witnesses.

Mr. Allick when answering a question during a Legislation Committee meeting in 1988 replied that a refrigeration and A/C certificate of qualification was required by the Apprenticeship Act.

May I please have a copy of Mr. Steve Dembe's report and recommendations ?

3. Necessity of Enforcement

The term "overworked" is not mine. Building Department officials of all area municipalities have and are claiming to need more staff and the media has carried many such stories.

The illustration you provide of a renovation contractor is clearly a re-active response on Hamilton's part. In the opinion of the C.P.T.A., no pro-active enforcement, in fact very little enforcement, is taking place.

Could you please provide me with a list of court cases now in progress or concluded in relation to this trades by-law. A list of firms who have had licences revoked or refused would also be appreciated.

Would you consider asking your staff to prepare a factual report (one not based on a personal opinion) for you, detailing how those involved in cases such as the renovator mentioned have fared? Have the victims received compensation for their inconvenience and financial losses? May I have a copy ?

4. Trades Examining Board

You state that "it is our interpretation". Do you mean A that it is your interpretation, B, that it is Brien Allicks interpretation through Steve Dembe, or C that it is your legal departments interpretation and in particular Mr. Andersons? If it is the opinion of your legal department then future action in this area would have to be left to the courts.

These two names were to the best of my knowledge the only ones submitted as examiners and were possibly chosen by those in authority (not the Legislation Committee) prior to the newspaper advertisements appearing in the Spectator. The advertisements did not mention that a very high remuneration would be paid to the chosen examiners, was probably not noticed in the paper by most if any refrigeration persons, and no organizations such as the Refrigeration Service Engineers Society were to my knowledge asked to submit candidates.

I consider my points 3 to 8 to be unanswered.

5. **Request for a Trades Licence Commission.**

I have made no suggestion that any individual has acted in an illegal manner in the past, nor am I likely to do so in the future. We are both astute enough to realize the difficulty of providing evidence of such activities. Lobbying and political influence are however facts of life that cannot be denied.

Your letter states that "regulations at the regional level are far more effective and economical". I concur. Therefore the C.P.T.A. suggests the establishment of a Commission and the hiring of regional by-law officers.

You have used the words "our opinion" and" us" in this section of your reply. Are these your personal views, the views of the Legislation Committee, or the advice of your legal department.

The C.P.T.A. will continue to request an independent commission. The Legislation Committee, including Mrs. Bell promised an opportunity for review of the by- law after one year and we request an opportunity to make a presentation.

In conclusion let me say that I have admired many of your actions since taking office. The relocation of the new Regional Headquarters to the city hall area is to be commended. I hope there will be no personal harmful financial effects to you. Perhaps this flawed trades by-law, that was legislated before your term of office, can also be rectified.

I still desire the opportunity to make a submission to the Regional Environmental Advisory Committee as soon as possible. As you did not reply to this request I am pursuing other avenues. Such a submission will be made by me personally, not the C.P.T.A.. The by-law will be only a small part of my presentation.

Perhaps you have not had the time or opportunity to become aware of the gravity of the Greenhouse effect and Stratospheric Ozone depletion. The enclosed letter to Mr. Martin Theriault, may be helpful to you and assist you in understanding my primary concern.

Few people realize the difference between the ozone caused by automobiles and industry **AT GROUND LEVEL** and **Stratospheric Ozone Depletion (WHICH IS PLANET THREATENING)**. The heavy print is used here because even very competent and intelligent persons fail to realize the distinction and degree of hazard involved.

I look forward to your reply and possible copies of the reports requested.

Yours sincerely,

Jim Taplay.

JIM TAPLAY

● AIR CONDITIONING ● REFRIGERATION

258 HYSERT ROAD, GRIMSBY, ONTARIO L3M 4E7 PHONE 643-1187

October 14, 1989.

Mr. Martin Theriault,
National Coordinator,
Canadian Environmental Network,
P.O. BOX 1289, Station B,
Ottawa, Ontario.
K1P 5R3

Dear Mr. Theriault,

Mr. Mike Dickman, President of the Niagara Ecosystems Taskforce has asked me to comment on stratospheric ozone depletion, chloroflurocarbons and the refrigeration industry in relation to the proposed draft legislation on VOC/NO .

I am a refrigeration service engineer with nearly 45 years experience working with CFCs. I became aware of Ozone depletion 4 years ago. Only in the last year have manufacturers and wholesalers begun to admit to the industry that a real and earth threatening hazard exists. For the past 15 years the menace to humanity from CFCs has been denied by the producers and large users of chloroflurocarbons. They formed several groups to combat any regulation or alteration that would affect their excellent profits. These organizations have very deceptive names, for example "The Alliance For Sensible CFC Regulation".

Although Rowland and Molina discovered the threat of Freon 12 and other CFCs in 1973 , NOTHING EFFECTIVE has as yet been done by the refrigeration industry to lower the amount of these chemicals entering the atmosphere. MOST PERSONS WORKING DAY TO DAY ON REFRIGERATORS AND AIR CONDITIONERS HAVE NO REAL UNDERSTANDING OF THE SERIOUSNESS OF THE PROBLEM.
Hundreds of tons of F12, for example are needlessly allowed to escape each day by unaware (or uncaring) workers. Refrigerant lost from a system by leaks has always been a great source of income for both ethical and dishonest contractors alike. What better way to make an extra buck than to refill an out of gas refrigeration system, not worry about a small leak which continues to vent the newly replaced F12 (or other CFCs) to the atmosphere, and return in a few months to make a profit all over again.

Service companies and contractors who attempt to purchase and use costly reclaim equipment cannot compete with those who make no attempt to protect the atmosphere.
Their labour and other charges to the client would of necessity be much greater resulting in many lost customers and possible bankruptcy.

The Prime Minister has stated that his POLICY IS.."LET THE POLLUTER PAY". The artificially legislated shortage of refrigerants now being created by Governments world-wide will have a result totally opposite to that goal. THE POLLUTER, ie. THE MANUFACTURER, WHOLESALER, and SERVICE COMPANY ALL STAND TO MAKE EXORBITANT PROFITS.

That manufacturing of chloroflurocarbons must be reduced and then stopped completely is now a scientifically proven fact. Substitutes must be found and utilized in both newly manufactured products and as replacement refrigerants in existing equipment. Chemical manufacturers first created the wide spread highly profitable use of CFCs. They have continued to negate the seriousness of the situation, and will own the very lucrative patents on new substitutes. Those contractors who will be converting the millions of existing refrigeration systems from CFCs to new refrigerants must not be allowed to arrange things for their own profit.

The creation of an artificial shortage by means of regulation such as the Montreal Protocol while it might allow the above windfall profits to the undeserving is never the less necessary. Manufacture of these earth threatening chemicals must halt as soon as possible. But that is only part of the solution.

IMMEDIATE LEGISLATION TO CONTROL THE QUALIFICATIONS, TRAINING AND CONDUCT OF ALL SERVICE AND INSTALLATION PERSONS IN THE REFRIGERATION AND AIR CONDITIONING INDUSTRY MUST BE PUT IN PLACE AT ONCE. Each pound of CFCs needlessly lost to the atmosphere will be contributing to ozone depletion for the next 150 years. How many millions of tons of chloroflurocarbons will be added to the atmosphere by unqualified, poorly or untrained workers when existing equipment is converted to new products? **I AM NOT AWARE OF ANY ATTEMPT BY ANY LEVEL OF GOVERNMENT, IN ANY COUNTRY TO DEAL WITH THIS PERHAPS MOST IMPORTANT ASPECT OF SAVING THE OZONE LAYER.**

We are fortunate in Canada that we have excellent apprenticeship legislation in several provinces. The U.S.A. will have a much more difficult task as much of their training is voluntary. HOWEVER, DESPITE GOOD LEGISLATION, ONTARIO REFUSES TO ENFORCE IT'S APPRENTICESHIP ACT AND INDEED IS CONTEMPLATING LOWERING IT'S TRAINING PERIOD FROM 5 TO 2 YEARS. H.R.A.I.the Heating Refrigeration and Air Conditioning Institute of Canada, basically a Manufacturer's and wholesalers group is sponsoring the lowering of trade standards. This organization has made recommendations to Legislators that I feel will result primarily in the protection of profit of their members. **NO MEANINGFUL ATTEMPT HAS YET BEEN MADE BY ANY GROUP TO ENSURE QUALIFIED AND TRAINED PERSONS ARE HANDLING CFCs.** WHOLESALERS SELL F12 (for example) to anyone with the price, regardless of that persons knowledge and qualifications of how best to safely utilize and conserve the refrigerant.

The FACT IS that suitable, tested, and approved substitutes ARE NOT YET AVAILABLE, may not be available for several years, will be very costly to purchase, and will result in a very expensive conversion programme involving all existing equipment (for example, milk, meat, & fruit coolers, ice cream and frozen food storages).

The equipment to allow reclamation, recycling or destruction is not available in any practical way.
WE DON'T HAVE THE EQUIPMENT, TRAINING OR THE ECONOMIC MEANS TO ALLOW A CONTRACTOR TO ACT UNILATERALLY AND REMAIN IN BUSINESS.

I could elaborate at length. Let me sum up by stating that the priorities of your proposed legislation for Canada and your example and emphasis to the rest of the world should be realistic in the work place, should not allow windfall or unethical profit taking, and should become effective this year. Legislation governing Statospheric Ozone Depletion by Chlorofluorcarbons should be in the following priority;

Control the qualifications of workers.

Retrain all present trades persons in conservation and conversion techniques.

Allow the sale of CFCs to qualified handlers only.

Phase out the manufacture of CFCs as quickly as possible (as opposed to when economically feasible).

This approach to the very apparent and intensifying danger to the planet has been ignored because of the influence and power of manufacturers and trade groups. Lack of action must end now. Not one more kilogram of F12 or any CFC should be carelessly, or needlessly vented to the stratosphere. ZERO DISCHARGE OF CHLOROFLUROCARBONS MUST BE THE IMMEDIATE GOAL OF THE REFRIGERATION TRADE. LEGISLATION IS NEEDED NOW.

Thank you for considering this submission. I would be most happy to pursue the issues raised further.

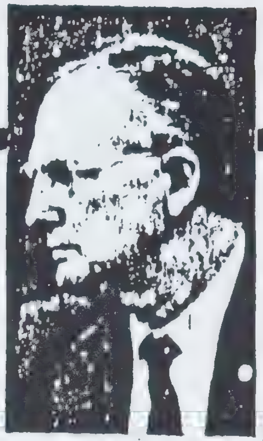
Yours sincerely,

Jim Taplay

Progress is steady on finding alternatives to CFCs, but the meter is running

One goal is to bring the chlorine content of the atmosphere back to levels of the early 1970's, which is about 2 ppb.

— Michael J. Kurylo, a senior member of NASA's research effort



The search for environmentally acceptable substitutes "has passed the point of being impossible to the point of maybe-it's-possible."

— Damon Gowan, ASHRAE president-elect

by Thomas A. Mahoney

GAITHERSBURG, Md. — A large international gathering of refrigerant producers, equipment manufacturers, academics, and government officials met to discuss progress in finding alternatives to chlorofluorocarbons (CFCs).

The bottom line: progress has been steady, but it will have to accelerate, because the meter — production cuts required by the Montreal Protocol — is running.

The two-day conference was cosponsored by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and the National Institute of Standards and Technology (NIST). The group met against a background of continuing bad news on atmospheric research.

Readings on ozone depletion and chlorine-loading of the atmosphere as current as late September show no alleviation of the problem, according to plenary speaker Michael J. Kurylo, a senior member of NASA's research effort.

Worse yet, evidence mounts that CFCs are also part of the larger "greenhouse effect," which is changing the chemical composition of the atmosphere "at a rapid rate." There is a "complex interplay" between the two problems, he said.

Finding the signature

It is a formidable task to pull out the "signature" of ozone depletion by manmade chemicals, when 300 million tons of ozone are produced and destroyed daily through natural cycles.

One goal is to bring the chlorine content of the atmosphere back to levels of the early 1970's, which is about 2 ppb, he said.

"If we go to use short-lived alternatives, whose life is five to 10 years, you could use them for a period of 30 years or so without appreciably affecting the long-term goal, the reduction of atmospheric chlorine back to pre-Antarctic hole levels," he said.

"If that is the goal, it can be accomplished quite easily with a full phaseout of fully halogenated CFCs and still allow for significant usage of some of the short-lived compounds."

For its part, ASHRAE said it has dedicated 20% of its $1.2-million research budget to the problem, and will continue sponsoring workshops and technical sessions on the subject.

In addition, a proposed ASHRAE standard on controlling refrigerant emissions has been circulated and will be fine-tuned this fall prior to publication, he said.

Avoid double retrofits

The search for environmentally acceptable substitutes "has passed the point of being impossible to the point of maybe-it's-possible," said Damon Gowan, ASHRAE president-elect.

Any substitute refrigerants must be "as close as possible to a drop-in, to avoid double and triple retrofitting" of existing equipment, he said.

The two main candidates for R-11 and R-12 remain HCFC-123 and HFC-134a, respectively. But considerable obstacles remain. These include:

- A consistent loss in energy efficiency and capacity, sometimes as high as 18%, for the alternative compounds.
- An inability to find effective — and compatible — lubricant oils for the substitutes. Refrigeration compressor manufacturers reported they have learned much more about the lubricity and miscibility of the oils, but much work remains to be done.

Consultant Kent Anderson said that the more environmentally benign R-22 — touted by industry as part of the solution to the problem — might be "monitored" as part of a revised Montreal Protocol.

"It might be just the reporting of the amounts of R-22 used," he said. "There doesn't seem to be a strong push to regulate, with the exception of maybe a few of the Scandinavian countries. There doesn't seem to be a strong consensus that it needs to be regulated."

R-12 phaseout

Earl Muir of Copeland said his company is planning a phaseout of compressors that use R-12. "The accelerated scheduled phaseout (of the Montreal Protocol) impacts us today, because most of the equipment we put into the field has a lifetime of 10-plus years," he said.

"So, most of our customers today look for the service of that equipment 10 and 15 years out. If CFCs are phased-out, we can't think of a replacement for them. They definitely do not want to put CFCs in service today."

R-22 holds promise for medium- and high-temperature refrigeration, he said.

For centrifugal chillers, the trick will be to ensure enough stocks of R-11 and R-12 to maintain them, said Floyd Hayes of The Trane Company. There are more than 100,000 centrifugals around the world, about 75% of which are in the U.S.

These systems actually account for only about 10% of R-11 used in the U.S., he said, and a "very small part of R-12 use." Moreover, most CFC use for centrifugals — as much as 80% — is for the aftermarket. Only a small fraction is used for original equipment application, he said.

R-123 and R-134a, while potentially acceptable, involve capacity and energy penalties, he said. The best environmental security is improved control measures such as better service practices and recycle-reclaim techniques, he said.

#4

HAMILTON-WENTWORTH

ENVRONMENTAL ISSUES SYMPOSIUM/WORKSHOP

OBJECTIVE

To convene a community based enviromental conference for the citizens of Hamilton-Wentworth to discuss the enviromental issues for the '90s in our Region. The conference will be an educational forum for Regional citizens on the issues/actions being addressed by various sectors of the community and provide opportunities for public input to the poltical/technical decision makers.

SCOPE

The symposium will address a wide range of environmental topics related to the following three principal focus areas;

1. Solid waste management
2. Water pollution control
3. Air pollution control

Within each of these broad based generic categories, a number of specific sub-issues have been identified in the proposed program

The participants will be drawn from the local community and will include representatives from the manufacturing sector, the government sector (local and provincial), the educational sector (Mohawk College & MacMaster University), environmental interest groups and the citizens of the Hamilton-Wentworth Region.

FORMAT

The conference will be an interactive format consisting of a series of plenary sessions for technical presentations followed by workshops related to the issues presented in the plenary.

It is proposed the keynote speaker for the conference shall be a national or international celebrity in the environemental field. The keynote speaker would be requested to discuss global environmental issues in the context of the local community and the average citizen. It is anticipated that the keynote speaker would establish the atmosphere for the conference and provide an overall focus for the participants.

Since the objective is to provide a community oriented conference, it would be appropriate to schedule the event for the weekend time period when a greater number of citizens may be available to participate. Given this criterion, it would be necessary to schedule all of the sessions over a two day period.

The following schedule of activities is suggested as the overall conference format.

Day 1 - Morning

- Introductory comments and introduction of keynote speaker

- Keynote speaker

- Panel presentation of key environmental issues for '90s
    - Political perspective
    - Industry perspective
    - Academic perspective
    - Citizen perspective

- Dicussion from the delegates

Lunch Break

Day 1 - Afternoon (Water pollution control session)

- Plenary session

    - Hamilton Harbour remedial action plan overview
    - MISA overview
    - municipal direction for the '90s
    - industrial directions for the '90s

- Concurrent workshops
    - Workshop A - MISA
    - Workshop B - Hamilton Harbour RAP
    - Workshop C - Municipal/Industrial directions

Day 2 - Morning (Solid Waste management session)

- Plenary session

    - Integrated waste management practices
    - Recycling
    - Hazardous waste management
    - Private sector role in waste management master plan
    - Environmental law

- Concurrent workshops
    - Workshop A - Integrated waste management
    - Workshop B - Recycling/Waste reduction

Lunch Break

Day 2 - Afternoon (Solid Waste management session continued)

- Workshop C - Hazardous waste management
- Workshop D - Impact of environmental legislation on waste management

- Plenary Session (Air pollution control issues)
  - Provincial standards and historical review
  - air quality issues of the '90s
  - industrial perpective on air quality issue
  - scientfic/academic perspective on air pollution issues
  - Discussion from delegates on air pollution control
- Concluding remarks and conclusions

CONFERENCE FUNDING

The cost of this undertaking would likely be in the order of $40,000 to $50,000. To make the conference accessable to as many citizens as possible, it would be desirable to have a nominal registration fee, perhaps $25. This implies that the cost of the conference would be absorbed by the municipality or corporate sponsorships. If the committee supports this concept then it will be necessary to make a budget submission for Council's consideration in the upcoming 1990 budget process.

CONFERENCE ORGANIZATION

It is recommended that a conference organizing committee be established consisting of three members of the Environmental Issues Sub-committee and one staff member for each of the following departments; Engineering, Planning. Economic Development and Finance. The organing committee would determine if external resources were required.

5

November 20, 1989

Mr. John Prentice,
Chairman,
Chairman's Advisory Committee on
Environmental Issues,
Regional Municipality of Hamilton-Wentworth,
71 Main Street West,
Hamilton, Ontario.

Dear Mr. Prentice,

At the last meeting of the Chairman's Advisory Committee on Environmental Issues, there was some discussion on a number of issues pertaining to: the role of the committee, what bodies it should report to, and how matters are referred to it. At the time, you informed the Committee that you would contact Regional Chairman Reg Whynott to further discuss these issues. To assist in this discussion, we would like to outline some of our thoughts and concerns and ask you to make them known to Mr. Whynott.

When reflecting upon the discussion at the previous meeting, we believe that there are two issues which must be addressed. These issues are: (1) What regional committees should the Chairman's Advisory Committee on Environmental Issues (CACEI) report to in order to fully discharge its mandate? and (2) What mechanisms or requirements should be in place to ensure that the appropriate and relevant matters are before the CACEI? These issues are discussed below.

(1) What Regional Committees should the CACEI Report to?

At the present time, the CACEI reports its recommendations solely to the Engineering Services Committee. Certainly, many important environmental issues are dealt with by this Committee, and hence, it is appropriate that the CACEI retains its ability to make recommendations to this Committee. However, it is our belief that, if the CACEI is to fulfill its mandate, **it must also have the ability to report and make recommendations to the Economic Development and Planning Committee**. In effect, what is being suggested is that the CACEI have the ability to make recommendations to both the Engineering Services Committee and the Economic Development and Planning Committee. The rationale for this dual reporting structure is as follows:

(a) The Planning Department has an incredibly important role to play in the protection and improvement of the Region's environment. For example, the Department at this moment is studying how sustainable development principles can be integrated into the planning process, and in particular, the Official Plan. It is also undertaking a State of the Regional Environment report. The Department also deals with the designation of Environmentally Significant Areas (ESAs) and approvals concerning development with those areas. These are just a few of the initiatives which the CACEI should provide review and comment. By having input in the planning process, it will become possible to take a more "proactive" approach to environmental issues rather than a crisis-by-crisis "reactive" approach.

(b) In all other regions where there are bodies such as the CACEI, those bodies report to a committee equivalent to the Economic Development and Planning Committee. Attached please find a document entitled EEAC: Promises and Reality, a document which outlines the results of a workshop on Environmental Advisory Committees. From that document, it is evident that all other advisory bodies believe in the need to have input in the planning process.

(c) Under the CACEI's current terms of reference, there are various matters which the committee cannot deal with unless it does have the ability to report to the Economic Development and Planning Committee. For example, the CACEI is delegated the task of reviewing matters dealing with "Natural Areas". But how can it undertake this task if most of the work pertaining to this matter is not dealt with by Engineering Services Committee, but by the Economic Development and Planning Committee?

In summary, we believe that the reporting routes of the CACEI should be expanded to include the Economic Development and Planning Committee.

(2) Ensuring that the Appropriate Matters are Referred to the CACEI

Since the inception of the CACEI, one of its perceived weaknesses is that there is little or no direction as to what the Engineering Services Committee should refer to the CACEI. As a result, some important matters are referred to the CACEI and other are by-passed. It is our belief that **both the Engineering Services Committee and the Economic Development and Planning Committee should be required to refer matters that have an environmental dimension to the CACEI for review and comment.** If necessary, guidelines can be drafted which outline what is meant by an "environmental dimension". The end result is that there will be some certainty as to what items should or should not be referred to the CACEI.

Although it may seem that both our recommendations will add to the workload of the CACEI, it is our belief that the workload will still remain manageable. There are many options open to CACEI to deal with this increased workload, such as forming subcommittees. At any rate, it is for the CACEI to decide what level of activity it can handle, and then take appropriate action.

We sincerely believe that the CACEI does and will continue to serve a valuable and useful role in the Region. Our desire is to enhance that role for the betterment of the Region. We hope that you sincerely consider our comments and relay them to the Chairman's office.

Thank you for your time and consideration in dealing this very important matter, and we look forward to seeing you at the next meeting of the CACEI.

Best wishes.

Yours very truly,

Paul Muldoon
Hamilton
Environmental
Action Team
(H.E.A.T.)

Rashne Baetz
Conserver Society
of Hamilton and
District

Brian McHattie
Hamilton Naturalists'
Club

cc. Members of the Chairman's Advisory Committee on Environmental Issues

EEAC: PROMISE AND REALITY

Notes from the Intermunicipal EEAC meeting held Saturday, June 17, 1989 in Guelph, Ontario from 9:00 a.m. to 1:30 p.m. The Waterloo, Halton and Niagara EEACs co-sponsored the meeting with the Waterloo EEAC and its chairman, Mark Dorfman, acting as host.

Attendance

Niagara EEAC:

Charlie Pryer (Chairman)
Mike Collins (Vice-Chairman)
Rick Brady
Ron Caston
Phyllis Kerkhoven
Mike Dickman
Greg Faraday
Stan Petit
Allan Veall
David Miller (Staff)
Don Campbell (Staff)
Kim Fowler (Staff)

Halton EEAC:

Debbie Ramsay (Chairperson)
Douglas Banting (Vice-Chair)
Brenda Axon (Vice-Chair)
David Greenfield
Peter VanDijken
Nancy Tilt
Mike Bensen

Waterloo EEAC:

Mark Dorfman (Chairman)
Ray Tufgar
Diane Damman
Shirley Rosenburger
Gordon Murchison
Harry Pal
Walter Grazieni
Frank Watty (Staff)
Sally Thorsen (Staff)

Others:

Terry Grawey (City of London)
Brenda Phillips (Stratford)
Jamie McEwen (Region of Durham)
Christine Kowalyk (Ministry of Municipal Affairs)
Nancy McMinn (London)
April Ionson (Greater Thames Conservation Authority)

Introduction

The meeting was meant as an opportunity for EEAC members and supporting staff to examine together their experiences, challenges and prospects. Two general objectives were set for the meeting:

1. To learn from the successes and difficulties of other EEACs and explore differences and common challenges.

2. To discuss the possibility of organizing a larger joint forum to be hosted by Niagara in the Fall.

The meeting was organized around four sessions:

- Organization (Membership, Composition, Procedures).
- Mandate and Activities
- Making the Process Work
- Fall Conference

EEAC Organization

Chaired by Mark Dorfman (Waterloo EEAC)

Panel: Mike Collins (Niagara EEAC)
Brenda Axon (Halton EEAC)
Diane Damman (Waterloo EEAC)

Each EEAC representative gave a short description of their EEAC. Topics covered included membership, composition, procedures and relationships of staff, council, government agencies. The following chart summarizes the basic characteristics of each EEAC.

Halton	Niagara	Waterloo
18-23 Members including 1 Councillor	21 Members including 6 Councillors	12 Members with No Councillors
Indefinite term. Vacancies filled in groups of 4 or 5 (approximately every 2 years) Vacancies advertised.	3 year term. EEAC replaced or reappointed with new Council. Advertises for new members.	3 year term. At least 4 re-appointed or replaced each year.
New members selected by existing EEAC and staff Endorsed by Council	Councillors appointed by Planning, Public Works, and Human Service Committee. These Councillors select lay members with staff assistance. Endorsed by Council.	New members recommended by staff, endorsed by Council.
Members represent a mix of expertise based on working or professional experience. Members come from public, private and academic backgrounds.	Members represent a mix of expertise as well as political and community representation	Members represent a mix of expertise. Close relationship with gov't agencies.

Halton	Niagara	Waterloo
Chairperson elected annually	Chairperson elected for 3 year term	Chairperson elected annually
Forms Subcommittees to examine specific issue or proposal	Has 3 formal Subcommittees - Natural Areas - Waste Management - Water Technology	Makes occassional use of Subcommittees
Meetings are Public	Meetings are Public	Meetings are Public with agendas sent to media.
Has a basic operating budget (conferences, mileage, etc) as well as some funding for special projects	Has a basic operating budget	Has a basic operating budget with additional funding for special projects
Reports to and advises Planning and Development Committee	Reports to and advises Council through Planning Committee	Reports to Planning and Development Committee
Items generally referred by staff to EEAC	Items referred by Council (usually through staff) or raised by an EEAC member	Items referred through staff (procedure outlined in Official Plan)

One of the more interesting differences between EEACs was the level of political representation. This ranged from no representation on the Waterloo EEAC to significant involvement at Niagara. Having political representation can increase political awareness improve communication, and forge a closer link with Council. Some, however, questioned whether this representation could potentially politicize EEAC decisions.

Mandate and Activities

Chaired by: Debbie Ramsay (Halton EEAC)
Panel: Don Campbell (Niagara Staff)
Doug Banting (Halton EEAC)
Ray Tufgar (Waterloo EEAC)

The basic mandate and activities of each EEAC were discussed in this session. On a general level, the mandates of the three EEACs are similar. Each EEAC is primarily charged with providing technical or expert advice to its respective Council. Beyond this general statement, however, each EEAC pursues and interprets its mandate in different ways.

Halton EEAC:

The Halton EEAC fulfills its mandate primarily through four functions:

- Review of development applications in Environmentally Sensitive Areas (ESAs);
- Review of Environmental Impact Assessments;
- Monitoring of activities in ESAs; and
- Providing a public awareness program on Halton's natural environment.

In terms of development review, the EEAC can be involved in providing basic comments or suggesting terms of reference for an environmental study. They will also review study results and may contribute information. There has been some involvement in general topics and issues with environmental concerns, like the closure and after-use of the Burlington landfill. Ongoing initiatives related to ESAs include maintenance of an environmental data bank and the review and update of ESA designations.

Educational efforts of the Halton EEAC have led to participation in environment week, tours of the Region, and production of a brochure on Halton's Natural Environment.

Waterloo EEAC:

The mandate of the Waterloo EEAC is established in relatively detailed terms of reference. The role of EEAC in the review of development proposals affecting ESAs is also outlined in the Regional Official Policies Plan. This review process is the priority commitment at present. The basic roles of the EEAC are (in order of current priority):

1. Plan Review
2. Technical Advice
3. Monitoring
4. Education.

Other projects of note include:

- A State of Environment report for the Region with an Environmental Planner who will work with EEAC. Part of the development of this report will involve the establishment of an emminent persons committee for community outreach.
- Providing advice to private landowners with particular ESAs assigned to EEAC members.

- Assisting in ESA policy development and the formulation of management plans for ESAs.

- Producing programs on the environment for the local Cable T.V. station.

Niagara EEAC:

The Committee's mandate is to provide technical advice to Council on environmental matters. A relatively flexible approach has evolved towards fulfilling this mandate. The Committee's terms of reference set out in general terms how items may come before EEAC. First, a Standing Committee of Council may refer a matter to EEAC. This usually occurs on the recommendation of staff or the initiative of an individual Councillor. Secondly, EEAC may itself raise topics that it wishes to pursue. Issues addressed have ranged from specific development proposals to broad policy issues.

In terms of development proposals, the mandate has not been tied strictly to ESAs. Specific development proposals (subdivisions) are not routinely reviewed. Rather, EEAC has played a role in such issues as:

- Proposed amendments to the Niagara Escarpment Plan

- Review of Provincial Policy Statements (Wetlands)

- Review of plans for the Ontario Waste Management Corporation facility

- Review of plans for a Regional Environmental Lab

- Participation in Environmental Assessments.

- Review of the Region's sewage sludge management program.

EEAC has also been discussing sustainable development and the World Conservation Strategy. A slide show was produced and shown to Regional Council and carried on the local Cable T.V. Station. Regional Council has also requested EEAC to advise on the possibility of a Regional environmental award.

The most striking difference between the mandate and activities of the EEACs is in the area of development review. Waterloo and Halton EEACs are regularly involved in the review of development proposals in or adjacent to ESAs while Niagara EEAC is not. On the other hand, Niagara EEAC reviews some larger issues or proposals, like the OWMC or Niagara Escarpment Plan Amendments, which are not commonly addressed by the other EEACs. The basic issue of whether the mandate of EEACs is best served by concentrating on specific proposals which are subject to extensive staff review, or by raising and exploring broader issues received some discussion.

While some differences among EEACs surfaced, it was also apparent that some common issues related to mandate and priorities were being faced. Education is one area which all three EEACs recognize as important but are searching for appropriate ways to fulfill their mandates in this area.

Making the Process Work

Chaired by: Charlie Pryer (Niagara EEAC)
Panel: Debbie Ramsay (Halton EEAC)
Rick Brady (Niagara EEAC)
Frank Watty (Waterloo Staff)

Have EEACs been effective and what is required to make the process work? This is the question which was discussed in the third session. Consistency, demonstrated expertise, and credible information were initially suggested as three important factors in making the process work.

Both the Halton and Waterloo EEACs offered comments on the development review process. It was observed that there has been a turn around in the attitudes of the development industry towards EEAC participation. Not only are EEAC comments recognized as a part of the process, but have resulted in improved developments.

When participating in the development review process, it is important to provide input which is:

- expeditious, timely, and cost effective
- based on defensible information.

In this regard, Halton and Waterloo have compiled environmental data banks. Making this information available to developers establishes trust and credibility. It is also important for EEAC decisions to be seen as being consistent.

In assessing the effectiveness of the process, an important contrast was discussed. The Waterloo EEAC works in a relatively structured way while Niagara has a very flexible approach (Halton appears to be somewhere in between). As a result, the outcome of efforts of the Niagara EEAC is often less tangible or obvious. The comment was made that while Niagara EEAC may not always be consistent in procedure or format, it is fair and professional in the advice that it offers. This advice provides a technical view, but may also increase awareness or ensure that a particular issue or viewpoint is considered in the process.

As an actor in the process of promoting sound environmental and resource management, it was suggested that EEACs should be aware of:

- their ability (and obligation?) to take a broad, interdisciplinary perspective when reviewing proposals - as opposed to the compartmentalization of government agencies constrained by limited mandates.
- the need to educate their audience (community, political) and not be elitist.
- the importance of the landowner, both as a manager of land and an important source of information.

Most participants had a positive view of the process. EEAC participation was seen to be effective in varying degrees. However, several questions emerged and the response to these challenges will play a role in determining future prospects for EEACs.

- Are EEACs dealing with specific issues without having a broader picture of what is actually happening? Environmental monitoring may deserve a higher priority.
- What is the role of EEACs in education? Awareness needs to be increased to make the process work but the role of EEACs is not established. Once again, this is an area in which some participants advocated an expanded role with either the political or general community as the target.
- How should EEACs respond to the larger issues inherent in sustainable development? This is an area which goes beyond the traditional activities of some of the EEACs.

Fall Conference

Chaired by: David Miller (Niagara Staff)

The final session was dedicated to discussing a possible conference in the Fall. This conference would be co-sponsored by the EEACs but could be larger than the inter-EEAC meeting and include other groups or individuals. Niagara EEAC could act as host.

It was first established that the consensus at the meeting was that a follow-up conference in the Fall was an appropriate and worthwhile idea to pursue. Once it was agreed that efforts should be made to organize a conference in the Fall, attention was focussed on what the objective, target group and theme of the Fall conference should be.

The basic decision faced was should the conference be

- aimed at learning more about EEACs and the advisory process, possibly using some case studies or examining issues in more detail

OR

- aimed at a particular theme or topic.

During discussion of this question, a number of points were made:

- the conference should not be aimed just at EEACs but also at others with an interest. This could include government agencies, community groups, municipalities, and areas interested in forming advisory committees.
- it is important to have a theme if the conference is to attract any attention. Specific suggestions included Global Climate Change, Waste Management, Water Quality.
- it is necessary to put a 'human face' on the environment. This is a matter of survival and every individual should be contributing to the solution. This message should be the ultimate purpose or foundation of the conference.
- many of the topics and issues discussed relate to sustainable development. Think Globally and Act Locally has been suggested as a theme. This would lead to a broader environmental scope with the conference organized as a round table. It could focus on defining the term sustainable development at a community level and to explore how and which environmental group should 'speak for' environmental issues at this community level. It was also suggested that the leading economic issue is 'growth' and that it can be translated into environmental terms in this discussion.
- it is important to define exactly who the target group is. That will have a bearing on the theme of the conference.
- it is also important to consider logistics at an early stage.

While no consensus on these various views was reached, it was suggested that many of the objectives expressed were in fact compatible. As a starting point, it was suggested that:

- the conference continue to explore some of the common EEAC issues identified at the interEEAC meeting.

- a particular theme or topic be defined to act as a focus.
- the conference involve a broader group with a higher profile but at a scale that is manageable. Invitations to selected target groups may be one option.

In conclusion, it was agreed that the inter EEAC coordinating Committee should draft an initial proposal for consideration by each EEAC so that any necessary approvals can be obtained.

Prepared by,

David Miller

David Miller

1224B

Conserver Society
of Hamilton and District Inc.

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#6

November [illegible], 1989

Mr. J. Ramsay, Secretary
Chairman's Advisory Committee on Environmental Issues
Regional Municipality of Hamilton - Wentworth,
Dept. of Engineering, 71 Main St. W.
Hamilton, Ontario L8N 3T4

Dear Mr. Ramsay,

Please include the following item in the agenda for our next meeting. Thank you.

Sincerely,
Rashné N. Baetz

I received a request from Mr. Keith Kuntz of Ancaster (dated Oct. 31, 1989) to raise two issues with our committee that concern him.

(#1) Last summer, at one of the Region's transfer stations*, Mr. Kuntz noticed a large number of paint cans and thinners being dumped by a member of the public. (This was not on a Household Hazardous Waste Day). When questioned, the person in charge at the

A registered charitable organization. 155 James Street South, Suite 601, Hamilton, Ontario L8P 3A4

Conserver Society
of Hamilton and District Inc.

station said his hands were tied as he had in the past attempted to discourage this, only to be told by his superiors not to interfere with the public as it only causes problems.

[Could we recommend that signs regarding what is hazardous household waste be reviewed and perhaps improved]

(#2) A few weeks ago Mr. Kuntz observed a Tricil truck pulling out from behind the plaza in Ancaster. A concentrated-looking effluent was pouring out from the back of the truck and was continuously running out onto Wilson Street, then, Fiddler's Green. Mr. Kuntz phoned Tricil and was told not to worry it was just rainwater. Mr. Kuntz reiterated that it was effluent contaminated by percolating through the garbage, but again he was told not to worry.

#7

REPORT ON: "LOOKING AHEAD TO A CRITICAL DECADE"

A conference co-sponsored by the Halton, Niagara, and Waterloo Ecological and Environmental Advisory Committees (EEAC)
Held Saturday November 18, 1989 at Brock University.

Purpose: To explore the message of sustainable development and how the principles of sustainability can be reflected in the advice EEACs provide to assist regional municipalities in making critical decisions

1. Overview of Sustainable Development

A. Presentation by Chris Winter - Conservation Council of Ontario

- Discussion of "Sustainable Development Strategy Project"- see attached document
- Stressed need for integration of diverse interests to find a balance between economic, and social activities while maintaining a vibrant, thriving ecosystem
- Need for action - Use of sustainable development demonstration projects

B. Presentation by Rick Findlay- Ontario Round Table on Environment and Economy

- Also need to develop demonstation projects along with written strategies - open for proposals
- Stressed need for "State of the Environment" reporting system built into the process. Would provide measurement of the health of the environment.

2. Panel Discussions

A. Natural Areas

- Need to establish ecological sustainability relating to the goals of the Conservation Council strategy (pg.15)
- Entertain environmentally friendly development

B. Community Action

- EEACs should link with local environmental and social organizations
- Encourage local groups to get involved in stewardship of local ESAs, monitoring programs such as biological inventories
- This participation builds knowledge, and skills in public

C. Rural/Agricultural

- If cost of producing food too high and farmers can´t make a go of it then does not provide a sustainable way of life
- Farmers sustain urban dwellers quality of life by maintaining open spaces for urbanite´s drives in the country

D. Energy

- Need to incorporate energy efficiency/conservation into planning process re new development
- See Conservation Council strategy (pg.9)

E. Environmental Quality

- Use citizens as watchdogs- bring concerns to EEAC to induce proactiveness
- Use stewardship programs to stop potentially environmentally situations from developing due to lack of monitoring

Workshop - Natural Areas

- Looked at how well ESA designation protects natural areas in Halton
- Case study - Developer contructed sustainably by developing around ESA leaving it intact and as a result was able to sell his homes at a premium due to presence of natural area
- Upland natural areas subject to development pressure versus protected floodplains
- Land tradeoffs can sometimes be used to secure natural areas
- Sustainable development strategy must be incorporated into every aspect of the Official Plan
- Continuing monitoring of ESAs imperative for protection- let local groups help in this labour intensive task
- Set up land purchase scheme through region along lines of World Wildlife Fund´s tropical rainforest protection program
- Challenge developers to maintain ESA significance through sustainable development
- Develop regional sustainable development demonstration projects

The last forty years we have embodied the "Growth Ethic", that growth is good and an increase in growth every year is desirable.

The next forty years we must incorporate the "Sustainable Ethic" into everything that we do. Our quality of life and ultimately our survival depends on it.

Prepared by: Brian McHattie, Hamilton-Wentworth EEAC

AN ENVIRONMENTAL STRATEGY FOR ONTARIO

AN ENVIRONMENTAL STRATEGY FOR ONTARIO

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ONTARIO NEEDS AN ENVIRONMENTAL STRATEGY

"We have won a lot of battles.
The problem is, we are rapidly losing the war."

Jim MacNeill,
Secretary general to the World Commission on Environment and Development, as quoted in a recent 24 page Southam newspaper supplement, "Our Fragile Future".

If you talk about the environment for long enough, you can be convinced that only a catastrophe will cause us to change our ways. Worse, you can be convinced that a global environmental catastrophe is inevitable.

This may well be the case. Recent studies on the greenhouse effect indicate that we can expect significant changes in weather patterns, reduced food harvests, flooding of coastal zones -- even if we implement the most stringent controls. And this global environmental problem is only one of many. Ozone depletion, acid rain, desertification, shrinking rain forests, and dwindling fish stocks present challenges unique to our time. This is no reason to give up. Rather, it is an indication that we need to work harder than ever before. The problems, though daunting, are not insurmountable.

Consider the work of the 1989 winners of the Lieutenant Governor's Conservation Award for Ontario. The individual winners, Adele Hurley and Michael Perley, have been fighting the acid rain battle for a full decade. That Canada, and recently the United States, has made a serious commitment to reducing the amount of acid-forming pollutants is in no small part due to their professional approach lobbying for The Canadian Coalition on Acid Rain. The corporate winner, Ontario Multi-Material Recycling Inc., an industry association, is a similar success story. They played a key role in setting up the "Blue-Box" recycling program in which 1.57 million Ontario homes currently participate. Over 13% of the waste generated by these households is now diverted from landfill through Blue Boxes.

The overall war involves many issue-oriented battles like acid rain and garbage. The complete list seems endless. It includes both the local battles, such as the development of a 2 acre wetland, and the major global issues like the greenhouse effect or the hole in the ozone layer.

Ontario cannot ignore its responsibility to resolve local issues, nor its contribution to global environmental health. We need to look at the development process which gave rise to these issues in the first place. Armed with new understanding, we must foster new types of development which are environmentally sustainable: products which don't pollute or promote waste; land use which enhances natural values; research to improve efficiency in resource use or develop environmentally sound alternatives. In other words, we need to promote economic and social development which provide a rational alternative to the current course of environmental destruction.

There is much to do, and little time left in which to do it. We can't afford to waste either our time or our efforts. We need strong leadership to coordinate the abundance of human and financial resources with which we can address these problems. We need a strategy to clean up our past mistakes and create a new society that is environmentally sustainable.

With this project, the Conservation Council of Ontario, its members, and other provincial organizations can provide much-needed support for the creation of a provincial sustainable development strategy. With your help, we can try to make this a winnable war.

THE CONSERVATION COUNCIL OF ONTARIO'S

SUSTAINABLE DEVELOPMENT STRATEGY PROJECT

DESCRIPTION

Since 1984, the Conservation Council has been promoting a strategy for Ontario. Our 1986 report, "Towards a Conservation Strategy for Ontario", gave recommendations on how the World Conservation Strategy could be applied to Ontario. This report helped lay the groundwork for the current emphasis in Ontario on a provincial Sustainable Development Strategy.

In 1988, the Province of Ontario made a commitment to implement a sustainable development strategy by 1992. In response to the report of the World Commission on Environment and Development, "Our Common Future", and the National Task Force on Environment and Economy, the Province established a Round Table on Environment and Economy. This advisory committee to the Premier is made up of several Ministers and senior business, environmental and special interest leaders. Its mandate includes drafting a strategy which will be submitted to the Provincial Government for final approval and implementation.

If the Ontario Round Table is to succeed in its mandate to produce a strategy, it will need the support of all major Ontario organizations and institutions. We will all have to be prepared to play a role in developing and especially in implementing the strategy.

The purpose of the Conservation Council's Sustainable Development Strategy Project is threefold:

1) to provide Ontario's Round Table on Environment and Economy with concrete recommendations for a provincial sustainable development strategy;

2) to develop an agenda for the research, lobbying, education and project activities by the Council, its members, and other organizations active in Ontario;

3) to establish criteria against which new government and non-government initiatives can be measured.

The Conservation Council's project will provide a well-researched and early contribution to the Round Table's deliberations in the following seven key areas. We anticipate they will be among the components that the Round Table will select for intensive study:

Agriculture
Energy Conservation
Forestry
Land Use
Waste Management
Water
Wildlife and Natural Areas

As our list of 33 Member Organizations indicates, the Council carries a diverse membership of organizations who support the principles of conservation. Through their representatives and staff we can contact over 100 people who represent the concerns of Ontario's non-government associations. We have over 50 Individual Members who volunteer their expertise in specific fields. Through our newsletter and Affiliate memberships, we reach another 500 individuals, organizations and corporations who take an active interest in our work. These people have the opportunity to contribute to Council policy and projects through our Task Forces on the above issue areas.

Our consultation process will involve working closely with a core group of volunteers (our Task Forces), conducting interviews with our Member and other organizations, and releasing draft material for general comment. From the organizations in particular, we are looking for a list of action items based on their perspective and needs. Our Task Forces and research staff will assemble these recommendations into a complete report for review.

Each report will contain recommendations for the actions we see as required to meet the objectives of environmentally sustainable development. The final reports will be approved first by the Task Force, and then by the entire Council.

Following the release of the reports, the Council will concentrate on implementing the recommendations by:

a) contributing to the development of a formal provincial sustainable development strategy;
b) pressing for government action on priority concerns;
c) reviewing government initiatives;
d) promoting activities by the wide range of non-government organizations which support the objectives of the strategies;
e) developing specific research, demonstration and education projects.

The Conservation Council, as a non-government organization, will make its best contribution to sustainable development by being an informed watchdog of the government's strategy and a participant in that strategy through specific demonstration and education projects.

RESEARCH SCHEDULE

PHASE 1: DEVELOPMENT

November / December	- Expand the Task Force membership as required; - Conduct interviews with Member and other organizations; - Hold initial Task Force meetings.
January, 1990	- First draft of recommended management actions circulated to Council and Task Force members for review.
February / March	- Task Force meetings to refine the recommendations.
April	- Final drafts released for review.
May	- Special Council meeting to approve the reports and initiate their implementation.

PHASE II: IMPLEMENTATION

Summer 1990 - 1992:

1) participate in drafting the formal Ontario Sustainable Development Strategy;
2) lobby for action on specific recommendations by government, industry and other organizations;
3) coordinate and support initiatives which contribute to meeting the strategic objectives in all sectors;
4) implement specific demonstration and education projects.

1992:

Conduct the first periodic review of the Council's strategy in order to strengthen the recommendations and ensure it remains current.

WHAT IS A STRATEGY?

OVERALL

A strategy is a plan of action. It outlines the most effective means of achieving a goal. It usually coordinates a variety of resources and the efforts of many individuals in order to obtain the maximum impact.

Solving the greenhouse effect, for example, will only happen with the combined efforts of government, public interest groups, the manufacturing and energy sectors and the general public. It will require a combination of regulations, education and support programs, and research and development.

A strategy outlines the steps necessary to achieve a series of objectives which support a final goal. It starts with a common goal and carefully maps out the specific requirements for achieving that goal. The process of planning a strategy involves bringing all the stakeholders together to draft an agenda for action based on a set of widely supported objectives. Once a strategy is drafted, the effectiveness of individual programs or new initiatives is measured by its ability to contribute to meeting the strategic objective, or target. A strategy requires strong leadership -- in this case, from the provincial government. A successful strategy will also draw on, and coordinate, the resources available in a number of sectors (including government, industry, universities and the public).

COMPONENT STRATEGIES

A strategy also needs to give clear direction as to how we can each contribute to meeting the overall goal. For this reason, more detailed strategies, or components, are developed for specific areas of concern or activity. Components can be developed around issues, jurisdiction, or geographical boundaries. The purpose is to coordinate the expertise in that area in support of the goals and objectives of the overall strategy.

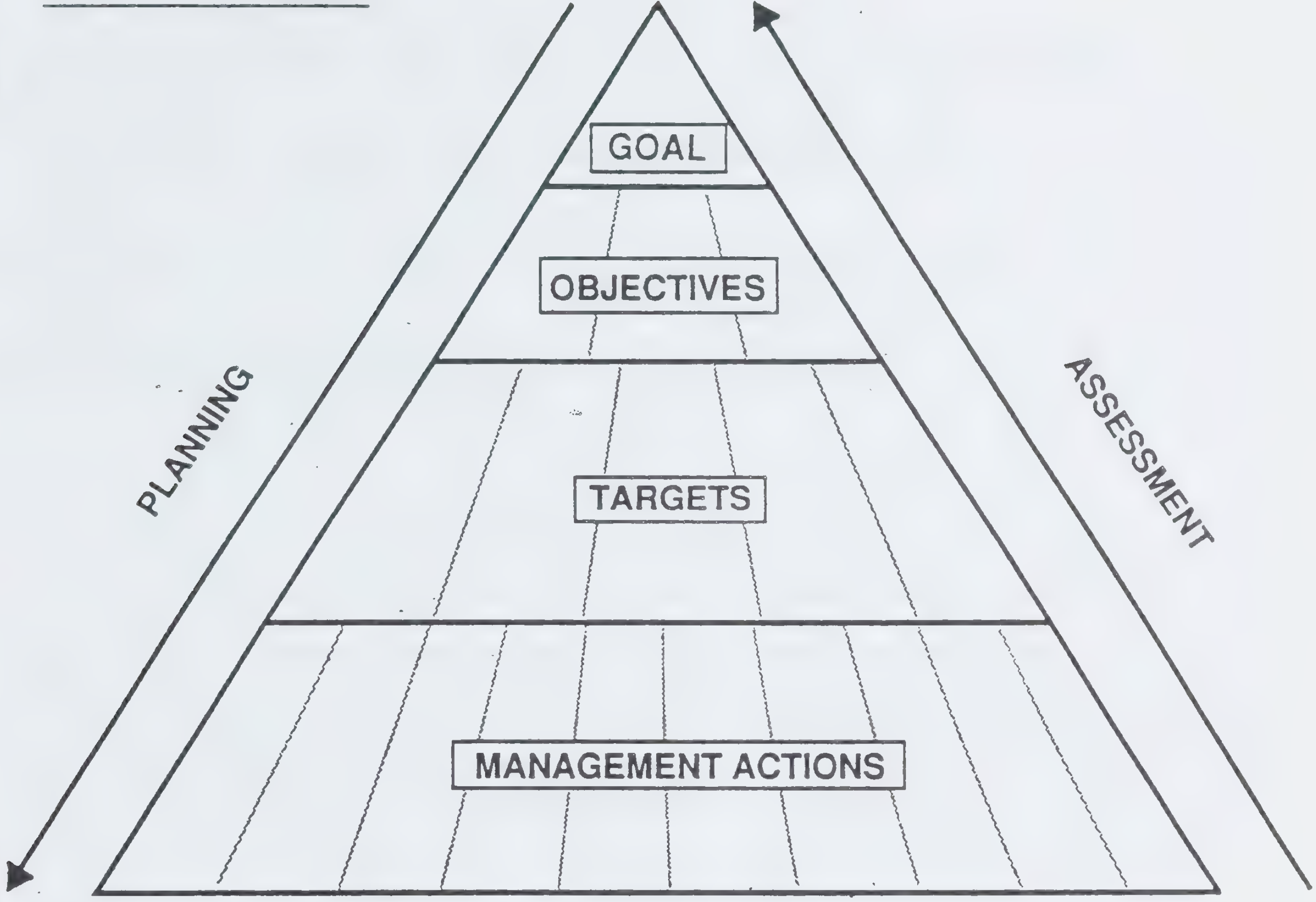
The components we have identified for our project are by no means a complete list. Others can be added dealing with public action, education, research and development, or economic sectors. They could just as easily be based on geographic regions, such as a Northern Ontario Strategy, or a municipal strategy. For example, the Council is currently working with the Town of Geraldton in Northern Ontario to set up a sustainable community project. The strategy will allow the town to develop a diversified and sustainable economy based on the surrounding resource base.

The components can also be built around government ministries. As we recommended in our 1989 report, "Ontario's Environmental Track Record", each of the relevant ministries (especially those whose ministers sit on the Ontario Round Table) should prepare a strategy for their jurisdiction. It is worth noting that the Ministry of Natural Resources has initiated two such projects: the Review of the Strategic Plan for Ontario's Fisheries (SPOF II) and a Wildlife Strategy for the Ministry's Wildlife Branch.

Finally, the strategy should look at the overall planning process guiding development activities. It should state the relative roles of government actions, such as:

- key pieces of legislation, such as the Environmental Assessment Act and the Planning Act;
- ecosystem standards to define environmental quality, natural habitat and resources requirements;
- policy statements;
- regulations;
- support programs.

STRATEGY MODEL:



Adapted from "A Proposed Strategic Plan for Ontario Fisheries", Ministry of Natural Resources, 1989.

DEFINITIONS

GOAL:	The goal is the overall objective for the strategy. It is a broad statement which can be readily endorsed by a wide range of interests. As the ultimate objective of the strategy, the goal is frequently one which is beyond the reach of the initial management actions outlined in the strategy.
OBJECTIVE:	The objectives provide a statement of what we can reasonably expect to achieve within the time frame of the strategy.
TARGET:	A target supports an objective with firm dates and figures. It provides a quantifiable means of determining whether or not an objective has been reached.
MANAGEMENT ACTION:	The management actions are the various activities and means by which we expect to meet our objectives. They include legislation, policy, ecosystem standards, regulations, incentives and disincentives, research, education, demonstrations projects and procurement. It can also include development initiatives.
SUSTAINABLE DEVELOPMENT:	"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (taken from "Our common Future", the final report of the World Commission on Environment and Development)

GOALS AND OBJECTIVES FOR SUSTAINABILITY:

Some Recommendations for Discussion

In this section, we offer some suggestions for the Goals and Objectives for both the overall and the component strategies. These are provided as a focus for initial discussions with Task Forces and individuals.

Each component strategy should have only one goal statement. The final list of objectives can be any number. For the purposes of this discussion paper, however, we present three broad objectives as a starting point for discussion.

1. A PROVINCIAL SUSTAINABLE DEVELOPMENT STRATEGY

Part of the mandate of the Ontario Round Table on Environment and Economy is to develop a provincial sustainable development strategy. The purpose of the strategy is to elaborate on how the principles of sustainable development can be applied to the planning and development activities in Ontario. We offer the following suggestions for the Goal and Objectives for the overall strategy.

Our suggested goal for a provincial sustainable development strategy is an expanded version of the term popularized by the Brundtland Commission:

GOAL:

To achieve economic and social development in Ontario that is environmentally sustainable.

The goal expresses the desire to find a balance between economic and social activities and the ecological problems which they generate. The ideal is to foster new ideas and growth which are the mark of a healthy economy and society, while maintaining a thriving, vibrant ecosystem. The goal is purposely designed to set ourselves a tough challenge.

Our recommended objectives for the provincial strategy are:

1) to develop specific strategies for major areas of concern;
2) to develop additional mechanisms which will promote desirable practices in all areas of activity;
3) to unify the component strategies into a cohesive government planning process including clear ecosystem standards, policy statements to guide development, and enforcement and incentive measures.

2. COMPONENT STRATEGIES

At this stage, we are suggesting an overall goal and three sample objectives in order to provide a focus for the initial discussion within each of the Task Forces. The Task Forces may alter or add other objectives as they see fit.

In many cases, the goal we suggest closely parallels the objectives set out in the World Conservation Strategy; namely:

1) to maintain essential ecological processes;
2) to preserve genetic diversity; and,
3) to ensure the sustainable utilization of species and ecosystems.

We have turned to the World Conservation Strategy because it provides a clear and widely accepted set of objectives. The subsequent World Commission on Environment and Development (Brundtland Commission) which popularized the term "sustainable development" does not give as clear a definition. The World Conservation Strategy is a global initiative which has been debated and supported by over 40 countries worldwide. The objectives closely reflect the requirements of sustainable development in that they say, in effect: keep the place clean, look after other species, and use the resource wisely.

In presenting sample objectives for each component area, we have endeavoured to provide broad objectives related to the major concerns. The explanation outlines individual issues for which we anticipate other objectives or targets will be developed.

AGRICULTURE

GOAL:

To develop a food system which provides for:
1) the maintenance of essential ecological processes and life support systems;
2) the preservation of genetic diversity;
3) the sustainable utilization of resources.

OBJECTIVES

The three categories delineated for the purposes of this discussion paper cover the preservation of a land base for farming, the promotion of sound farm management techniques and, looking beyond the farm-gate, the processing and marketing of food to society.

1) Land:

OBJECTIVE #1.

To halt the loss of Ontario's prime farmland.

This objective will require a discussion of how much of Ontario's prime agricultural land we can realistically expect to preserve in light of competing land uses. Related issues which will have an impact on this objective include the rehabilitation of marginal lands, the preservation and rehabilitation of natural areas, and the requirements for housing and urban development. The objective should can be strengthened with specific targets for individual regions.

The management actions will require reviewing the effectiveness of the Foodland Preservation Guidelines and the Planning Act, as well as considering other mechanisms, such as incentives and land acquisition programs.

2) Husbandry:

OBJECTIVE #2.

To promote farm management practices which ensure the future viability of Ontario's farms.

Issues to be reviewed include: soil erosion and the regeneration of new organic material, fertilizers, pesticides, genetic diversity, biotechnology and alternative management styles (organics, zero-tillage).

3) Food Industry:

OBJECTIVE #3.

To promote a healthy and environmentally-sound agri-business.

Issues to be reviewed in this section include: additives, nutritional value, packaging (with respect to the three R's of waste management, energy efficiency, and marketing). We anticipate the recommendations will touch on improvements to food processing as well as promoting a healthy population.

The inclusion of the food industry in the agriculture sector highlights our belief that a sustainable development strategy should look at social and economic objectives as well as environmental objectives.

ENERGY CONSERVATION

GOAL:

To reduce Ontario's dependence on non-renewable and polluting energy sources.

Present forms of energy consumption contribute to global environmental problems, such as acid rain, the greenhouse effect, and the long-term storage of radioactive waste. Both the Ministry of Energy and Ontario Hydro have publicly stated that they view conservation, or demand reduction, as the first priority for energy management for both environmental and economic reasons. Therefore, we have decided to focus on energy conservation, rather than the entire energy sector.

The stated goal of reducing Ontario's dependence on non-renewables is, relative to the goals for other components, a short-term goal. Our challenge is to implement an effective conservation strategy which will actually reduce the annual consumption rate.

Conservation is only a short-term solution which may eventually be countered by continued economic growth. In developing a complete energy strategy, we will need to analyze sustainable levels of consumption (or growth) in terms of supply and environment loadings.

OBJECTIVES

1) Efficiency

OBJECTIVE #1.

To reduce the waste associated with the consumption of energy.

In this instance, waste implies both the inefficient use of energy and also the waste products resulting from energy consumption. Issues include: consumer products, building design and retrofit, industry and commercial conservation measures, urban design, and emission controls.

2) Consumption Patterns:

OBJECTIVE #2.

To achieve widespread public support and participation in energy conservation measures.

Issues include: setting and enforcing standards, education, incentives, etc.

OBJECTIVES

1) Ecological Values:

OBJECTIVE #1.

To identify and protect areas or processes of ecological value.

The maintenance of ecological processes and genetic diversity can be achieved in an urban setting by preserving and actively acquiring green space along river valleys and adjoining corridors, and by limiting urban encroachment on surrounding rural lands.

Issues include: the preservation of urban green space, food production, the preservation of natural corridors in rural areas, air and water quality standards.

2) Social Values:

OBJECTIVE #2.

To provide for a high quality of rural and urban life.

A high quality of life involves meeting housing, transportation, recreation, and food needs while maintaining ecosystem health and sustaining natural resources.

Issues include: housing requirements for a growing population, recreation facilities and spaces, aesthetics, clean water, urban design, and public transportation.

3) Planning:

OBJECTIVE #3.

To develop an efficient and effective planning process within an ecosystem context.

The planning process needs to find a balance between human and ecosystem needs. Issues include population trends, the need for ecosystem-based standards, and the effectiveness of the planning process.

WASTE MANAGEMENT

GOAL:

To eliminate waste.

OBJECTIVES

1) The 3 "R"s:

OBJECTIVE #1.

To establish the principles of reduce, reuse and recycle as a priority in production and consumption processes.

The target established by the Ministry of the Environment for diversion of municipal solid waste from landfill and incineration of 25% by 1992 (50% by 2000) will help in the formulation of recommended management actions. We may wish to review these targets to determine whether a stronger target is technically and/or economically feasible.

Issues include: environmentally friendly products, packaging, returnable and refillable products, recycling and composting.

2) Disposal:

OBJECTIVE #2.

To develop safe methods for disposing of final waste products.

The 3 Rs, and primarily reduction, should always be the top priority for a waste management strategy. However, there will always be some waste requiring disposal. The disposal technology and site should be selected with environmental safety as the top priority.

Issues include landfill sites, selection and design, hazardous waste disposal, spills, and sewage treatment.

3) Air Pollutants

OBJECTIVE #3.

To establish a comprehensive set of standards for atmospheric emissions.

Strong ecosystem-based standards for issues such as vehicle exhaust, CFCs and sulphur dioxide, once set, could be achieved largely through the principles of the 3 R's. For example, CO_2 emission standards can in part be met through increased use of transit and alternative fuels.

WATER

GOAL

To achieve healthy aquatic ecosystems which provide for:

1) the maintenance of essential ecological processes and life support systems;
2) the preservation of genetic diversity;
3) the sustainable utilization of resources.

OBJECTIVES

1) Ground Water:

OBJECTIVE #1.

To promote effective surface and groundwater management in developed areas.

Issues include storm water management, urban and agricultural runoff, appropriate development guidelines, and the rehabilitation of urban streams.

2) Water Quality:

OBJECTIVE #2.

To ensure clean water supplies.

Issues include setting standards (swimmable, fishable, drinkable) for aquatic ecosystems and remedial action plans to clean up existing problem areas.

3) Diversions:

OBJECTIVE #3.

To maintain the integrity of aquatic ecosystems.

Issues include water shortages in North America, hydraulic power and the ecological impacts of inter-basin transfers.

WILDLIFE AND NATURAL AREAS

GOAL

To develop a system of natural areas which provide for:
1) the maintenance of essential ecological processes and life support systems;
2) the preservation of genetic diversity;
3) the sustainable utilization of resources.

OBJECTIVES

The Ministry of Natural Resources recently established a special Ontario Wildlife Working Group to draft a Wildlife Strategy which will guide the future development of the Ministry's wildlife program. In the same way that our overall project is designed to feed into the Ontario Round Table's deliberation over a provincial strategy, the Wildlife and Natural Areas component will closely parallel and complement the structure of the Ministry's Working Group. In this instance, our categories are the same as those identified in a background paper for the Working Group's first workshop.

1) Habitat:

OBJECTIVE #1.

To identify and protect significant natural areas.

The protection of existing, undisturbed natural areas is far less expensive that the restoration of degraded sites. Many ecosystems, once destroyed, cannot be reclaimed. It is therefore crucial that the preservation of undisturbed natural areas be a first priority for a wildlife strategy.

Issues include: parks, wetlands, ANSIs, ESAs and other categories, species extinction (minimum habitat requirements).

2) Wildlife Populations:

OBJECTIVE #2.

To maintain healthy and diverse wildlife populations.

Maintaining healthy populations involves not only their habitat protection, but also determining what level of use they can sustain. Our definition of wildlife includes both flora and fauna, both game and non-game species.

Issues include: pressures resulting from hunting, tourism, cottaging, increased human population, and pollution.

3) Human Activities:

OBJECTIVE #3.

To allow for a diverse range of activities based on natural ecosystems.

Given secure wildlife populations, the intent is to recommend opportunities for compatible tourism, recreation and economic uses of natural areas.

Acknowledgements

The Council wishes to thank our Members, our many corporate and individual donors and the Province of Ontario. Their continued support has allowed us to develop this project. Our initial work on an Energy Conservation Strategy has been funded through a generous grant from Ontario Hydro. In addition, our core activities, including this project, are supported in part by grants from the Ministries of Agriculture and Food, Energy, Environment, Natural Resources, and Northern Development and Mines.

The graphic on page 6. was provided courtesy of Done To Perfection Desktop Publishing.

For further information on this project, contact:

Chris Winter
Research Director
The Conservation Council of Ontario
506 - 489 College St.
Toronto
Ontario
M6G 1A5

Telephone: (416) 969-9637 Fax: (416) 960-8053

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THE CONSERVATION COUNCIL OF ONTARIO

MEMBER ORGANIZATIONS:

- BRUCE TRAIL ASSOCIATION
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- SOIL AND WATER CONSERVATION SOCIETY (ONTARIO CHAPTER)
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- WILDLANDS LEAGUE

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Energy Conservation:	John McRuer
Forestry:	Mack Williams
Land Use:	Bryan Bertie
Waste Management:	Bill Glenn
Water:	Glenn Harrington
Wildlife and Natural Areas:	Bryan Boyce

RESEARCHERS:

Chris Winter (Research Director)
Andrew Bales
Brian Clavier
Cat Cybulski
Kathy Goddard
Chris McGuckin
Randy Richards

Ontario Round
Table on
Environment
and Economy

Table ronde
de l'Ontario sur
l'environnement
et l'économie

For further information please contact
the Round Table Secretariat at:

790 Bay Street
Suite 1003
Toronto, Ontario
M7A 1Y7

Phone (416) 586-2032
Fax (416) 586-2197

Mission Statement

The mission of the Ontario Round Table on Environment and Economy is to foster and promote sustainable development in Ontario.

Terms of Reference

The Ontario Round Table on Environment and Economy shall provide a forum for Ontario's decision-makers to develop strategies and policies which when implemented will ensure sustainable development in Ontario. In order that the people of Ontario will be able to enjoy a healthy environment and continued economic opportunities both now and in the future, the Ontario Round Table will:

1. Through broad public consultation, establish a framework and provide guidance and coordination for the development of a provincial Sustainable Development Strategy.
2. Promote appropriate Demonstration Projects which reflect the principles of sustainable development.
3. Promote Outreach Programs to make the citizens of Ontario aware of the principles of sustainable development so that their decisions will be influenced by these principles.
4. Commission Research in support of the activities of the Round Table.
5. Liaise where appropriate with other Round Tables including the National Round Table.
6. Monitor and Report to the Premier, as required, on Ontario's progress in implementing applicable recommendations of the National Task Force on Environment and Economy.

Members of the Round Table will be ambassadors for change where appropriate within their constituencies and will advocate that others join them in adopting and applying the strategies and initiatives developed by the Round Table.

The Ontario Round Table on Environment and Economy shall periodically report to the Premier of Ontario on progress in implementing these initiatives including a three-year activities review report scheduled for April, 1992.

Member Listing

Mr. Jim Bradley, Minister of the Environment

Mr. David Buzzelli, President and CEO, Dow Chemical Canada Inc.

Mr. Grant Collins, Past President, Bruce County Federation of Agriculture

Mr. Murray Elston, Chairman, Chairman of Management Board & Minister of Financial Institutions

Mr. Cecil Flenniken, Chairman and CEO, Canadian Pacific Forest Products Ltd.

Mr. Jon Grant, President, Quaker Oats Company of Canada

Mr. Colin Isaacs, Environmental Consultant

Mr. Dean Jacobs, Executive Director, Walpole Island Heritage Centre

Mr. William James, Industrialist

Mr. Monte Kwinter, Minister of Industry, Trade and Technology

Ms. Lyn McLeod, Minister of Natural Resources and Energy

Mr. Robert Nixon, Minister of Treasury and Economics

Mr. David Runnalls, Associate Director, Institute for Research on Public Policy

Ms. Pamela Stokes, Professor of Botany, University of Toronto

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Ms. Sylvia Sutherland, Mayor of Peterborough

Mr. David Sutton, President, Kashabowie Outpost and Shebandowan Air Ltd.

Mr. Richard Thomson, Chairman and CEO, Toronto Dominion Bank

Ms. Toby Vigod, Canadian Environmental Law Association

Mr. Robert White, President, Canadian Auto Workers

Mr. Robert Wong, Minister of Citizenship

Niagara

DPD 1568
July 28, 1982
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#8

Report to: Mr. Bell, Chairman and Members of the Planning and Development Committee

Mr. Campbell, Chairman and Members of Regional Council

Councillors:

The Establishment of An Ecological and Environmental Advisory Committee

At the annual meeting of the Federation of Ontario Naturalists in May 1982, the following resolution was passed:

> "that the Federation of Ontario Naturalists encourage the Regional Municipality of Niagara to accept the proposals of the Niagara Falls Nature Club, and Peninsula Field Naturalists Club toward the establishment of an Ecological and Environmental Advisory Committee to advise on matters concerning the environment."

A copy of the Federation of Ontario Naturalists letter is attached.

The Policy Plan provides for the formation of an Ecological and Environmental Advisory Committee (EEAC) in Policy 7.B.1 in the Natural Resource and Environmental Area section of the Policy Plan. The Public Works Committee has reviewed the Federation of Ontario Naturalists letter and supported the formation of such a committee. Their recommended members on the Committee are Councillors Griffiths and Sobol. Also, Public Works staff have expressed an interest in the committee as their Regional projects requiring environmental assessments might be reviewed by the EEAC committee.

The establishment of an EEAC committee was discussed by the Planning and Development Committee several years ago. The recent interest shown by local naturalists clubs and the Public Works Committee support the formation of an EEAC at this time. Furthermore the recent extending of environment assessment regulations to municipal undertakings lends support to the appropriateness of an environmentally oriented technical advisory committee such as an EEAC.

This report discusses the proposed membership for the EEAC and the type of policies and development proposals and applications that might be referred to the Committee. The Planning and Development Committee will normally refer topics to be considered by EEAC. However other standing committees such as Public Works could also refer topics to EEAC.

It is suggested that two representatives from the Public Works and Utilities and the Planning and Development Committees be appointed to EEAC. This four member group could then make recommendations to the Planning and Development Committee for membership from the community. Approximately 15 lay members are suggested. Each lay member should have a technical environmental background.

What is an EEAC Committee?

An Ecological and Environmental Advisory Committee is normally a technical advisory committee composed mainly of local technical people. In addition, there should also be membership from the Public Works and Planning Committees. Thus, it is similar in structure to the established Agricultural Subcommittee. It could provide a broad range of technical assistance to Regional Committees and Council on environmental matters.

The expected two main roles of an EEAC would be to contribute to the discussion on environmental policies in official plans and to comment on particular development proposals. Since the regulations of the Environmental Assessment Act, 1975 now apply to a variety of municipal undertakings it is timely that an EEAC be formed in Niagara to review municipal projects that may require environmental assessments. An EEAC committee can review environmental policies and development applications early in the established review processes when changes to reduce environmental effects are more easily accommodated. This may avoid a delay in implementing a policy or a development because of inadvertently overlooking an environmental consequence.

EEAC's In Other Regions

The Regions of Waterloo and Halton have EEAC committees. Both have been of assistance in providing technical information on environmental matters. Based on the experience of these two EEAC's, other Regional Municipalities are considering the establishment of similar committees. The Regions of Hamilton-Wentworth and Ottawa-Carleton are both investigating the formation of EEAC's.

The two established EEAC's are composed of approximately 15 technical advisors from their Regions with one or two Regional Councillors. A planning staff member is the recording secretary and provides agendas and minutes of meetings. These committees have provided technical assistance to the Regional Planning Committees on a variety of environmental matters. The Planning Committees refer proposed policies and development proposals that may have an environmental effect to the EEAC Committee. EEAC reviews the proposals and provides technical comments to the Planning Committee for their consideration. This procedure has proven to be an efficient and effective method to provide technical, environmental information to the Planning Committees.

Topics That May Be Considered By An EEAC

An EEAC would be a technical subcommittee of the Planning and Development Committee. Any topic to be considered by the EEAC is referred to the committee by the Planning and Development Committee. Other Regional Standing Committees also may wish to refer topics to EEAC from time to time. For example, the Public Works Committee may wish to have technical input from the EEAC on regional projects that may require an environmental assessment.

The following are some examples of policies and development proposals that could be referred to EEAC by the Planning or Public Works Committees.

- Environmental policies in the Regional Policy Plan and local Official Plans.
- Policy Plan and local Official Plan amendments that may have an environmental effect.
- Municipal or regional projects that may require an environmental assessment under the expanded municipal regulations under the Environmental Assessment Act, 1975.
- Environmental assessments completed under the federal Environmental Assessment Review Process or the provincial Environmental Assessment Act, 1975.
- Assistance in the identification and evaluation of Environmentally Sensitive Areas.
- Development proposals that may have a significant environmental effect.
- Development proposals in or near Environmentally Sensitive Areas.

The Niagara EEAC

The Niagara EEAC might be established similarly to the two existing committees in the Regions of Waterloo and Halton. In both cases local people with a wide variety of technical backgrounds such as hydrologists, botanists, aquatic biologists, etc. are members of the committee. Regional Councillors and planning staff are also represented. Planning staff are not members of the committee but assist the committee by preparing agendas and minutes of the meetings.

Only Planning Committee members are represented on the two existing EEACs. The addition of Public Works Committee members would be unique. However, there are several advantages to having Councillors from both Planning and Public Works Committees on EEAC. While the Planning Committee has been involved with environmental policies and related development proposals, the Public Works Committee may expect more involvement now that certain municipal projects require environmental assessments. Representation on EEAC should enable possible municipal projects to obtain early consideration when the potential for changes is greater and to make every effort to avoid the possibility of unnecessary hearing delays as the start of construction draws closer.

It is proposed that two members be appointed to EEAC from both the Public Works and Planning Committees. These members then would recommend how lay members would be appointed to EEAC. The final appointment of lay members to EEAC would be done by Regional Council following recommendations from the Planning and Development Committee. The lay people on EEAC should have a wide range of technical environmental backgrounds. Approximately 15 lay people serve each of the existing EEACs. Staff representatives from both Public Works and Planning Departments should attend.

One of the first responsibilities of EEAC is the development of terms of reference for the sub-committee. Examples in this report of the types of policies and development proposals that may be referred to EEAC should be the basis of the terms of reference but the sub-committee may wish to add other suggestions. Once this is completed, approval would be required by the Planning and Development Committee and Regional Council.

Conclusions

The formation of an EEAC as a sub-committee of the Planning and Development Committee is provided for in the Policy Plan. A recent interest in this committee by local naturalists clubs and changes in the Environmental Assessment Act to require environment assessments for some municipal undertakings supports the formation of an EEAC. Our Public Works Committee has endorsed the creation of an EEAC and has chosen Councillors Griffiths and Sobol as representatives. Planning staff feel that an EEAC would be of assistance in reviewing environmental policies and development proposals. One additional benefit of an EEAC committee is that it provides an opportunity for individuals to participate in and become aware of the responsibilities and services of Regional Niagara.

Recommendations:

1. That the Planning and Development Committee establish an Ecological and Environmental Advisory Committee (EEAC).
2. That the Public Works and Utilities Committee and the Planning and Development Committee each appoint two of their members to the Ecological and Environmental Advisory Committee.
3. That the four Regional Councillors appointed to EEAC be authorized to recommend the method for appointing approximately 15 lay members. These lay members should have technical environmental backgrounds that would be of assistance in reviewing environmental policies and development proposals.
4. That once the lay members have been appointed to EEAC by Regional Council, that the EEAC prepare draft terms of reference using the topics outlined in this report for the consideration of the Planning and Development Committee and Regional Council.

Prepared by

Richard F. Brady

Richard F. Brady
Planner

Corwin T. Cambray

Corwin T. Cambray
Manager, Policy Planning

RFB/CTC/jm

Respectfully submitted

Alan Veale

Alan Veale
Planning Director

3 1061

From Minutes of Regional Niagara's EEAC for April 14, 1983 - The Initial Organizational Meeting of the Committee.

4. Discussion on Membership, Staff Liaison and Terms of Reference

Alternates

The Committee discussed the idea of an alternate for a member that could not attend a meeting. Both pros and cons of an alternate were discussed. It was mentioned that since meetings were open anyone could attend.

Moved by Mr. K. MacDonald
Seconded by Mr. R. Secord

That a named non-voting alternate could be sent by a member.

Carried

Any EEAC member that would like to send an alternate from time to time should submit the name, address and phone number of their alternate to the EEAC secretary, Richard Brady in the Planning Department.

Replacement of Members

The Committee discussed various means to replace members that resign from the Committee before their term of office has been completed.

Moved by Dr. B. Krushelnicki
Seconded by Mr. K. MacDonald

That a recruitment committee be formed, when needed, to propose the procedure for obtaining new lay members to EEAC to replace members that resign during a term of office.

Carried

Any new member will be appointed by Regional Council following review by the Planning and Development Committee.

The Committee had some discussion on the number of meetings a member could miss before the Committee would request an explanation. It was agreed that this matter could be referred to a subcommittee at a later date if necessary.

Frequency of Meetings

The frequency of meetings was discussed by the Committee. Since this is a new committee, the work load is somewhat unknown at this time.

Moved by Dr. J. Jackson
Seconded by Dr. M. Dickman

That the Committee would meet at the "Call of the Chair" or approximately every two months.

Carried

Meeting Time

The Thursday, 7:30 p.m. time for the Committee meetings was agreed to by EEAC. It was recognized that the meeting would not be called on a Thursday that was scheduled for a Regional Council meeting.

Term of Office

The term of office of lay members was discussed by the Committee. It was agreed that the lay members would remain this term of Regional Council. However the Committee expressed some interest in re-examining this issue at a later date.

Terms of Reference

The Committee had considerable discussion on this topic. For the most part the discussion centered around two types of work that members of the Committee want to be discussed at upcoming meetings.

- Referrals from Standing Committees. This was described as reactive involvement.
- Bringing forth their environmental concerns. This was described as creative involvement.

Different members tended to favour one type of work over the other. While it was generally agreed that both would need to be considered by the Committee, the importance of working on referrals from Regional Council and Standing Committees was recognized. In addition, the Committee may wish to bring other items to the attention of the Standing Committees.

Moved by Mr. K. MacDonald
Seconded by Mr. C. Pryer

> That as a statement of the general philosophy for a terms of reference, the "Topics that May be Considered by an EEAC" in the memo from planning staff be adopted.

Carried

A copy of this memo is attached.

Moved by Dr. F. Banfield
Seconded by Dr. B. Krushelnicki

> That the Committee be able to bring to Regional Council's attention environmental concerns that are considered important by EEAC.

Carried

Moved by Mr. K. MacDonald
Seconded by Mr. C. Pryer

> That a subcommittee be established to prepare a list of environmental topics and to identify priorities for the consideration of EEAC and subsequently by Regional Council for the purpose of developing a work program for EEAC and various subcommittees which may be established as a result.

Carried

The following members volunteered for the Environmental Issues subcommittee:

M. Howe
K. MacDonald
S. Pettit
C. Pryer

Any environmental topics that EEAC members wish to be considered by this subcommittee were to be sent to the EEAC secretary by April 28th, 1983.

5. Discussion of further Work for EEAC

A discussion of further work for EEAC was included with the discussion of Terms of Reference. Both matters are inter-related and somewhat difficult to separate. Once the subcommittee on Environmental Issues brings a report to EEAC, further discussion of upcoming work load will be held.

6. Other Business

On April 7, 1983, Regional Council referred a resolution to EEAC on the matter of disposal of hazardous waste. The resolution is attached to these minutes.

The following members volunteered for the Ontario Waste Management Corporation subcommittee.

A. Besenyo
L. Daniels
M. Dickman
R. Durdan
R. Durham
S. Pettit

This subcommittee will research and prepare a report for EEAC on the resolution. After discussion by EEAC a response to the resolution will be submitted to Regional Council through the Planning and Development Committee.

ADJOURNMENT

The Committee adjourned at 10:00 p.m. The next meeting will be held at the call of the chair.

Peter Sobol
Chairman

Richard F. Brady
Planner

RFB/jm

Regional NIAGARA

ECOLOGICAL AND ENVIRONMENTAL ADVISORY COMMITTEE

Highlights of Activities

1986 - 1988

Ontario Waste Management Corporation (OWMC)

- EEAC reviewed and accepted Regional Niagara's strategy on the OWMC.

- The Waste Management Subcommittee reviewed and commented on the topics Regional Niagara proposed to investigate respecting the OWMC.

- At EEAC's recommendation, meetings of the OWMC Steering Committee were opened to the public.

- In 1986 the Township of West Lincoln proposed that it coordinate the municipal response to OWMC and act on behalf of the Region. EEAC recommended that the coordination of the concerns of the citizens of the Region be represented by the Region and made a presentation to Regional Council. Council decided to continue with its own review of OWMC's plans.

- At EEAC's recommendation the OWMC Steering Committee received a presentation from Citizens for Modern Waste Management.

- The Waste Management Subcommittee reviewed and commented on the following components of OWMC's plans:

  1) Air emissions and atmospheric dispersion.

  2) Incinerator design and operations.

  3) Geology, hydrogeology, and geotechnics.

  4) Solidification of treated waste.

- The Subcommittee secured the following information:

  1) Design and operations of the Biebesheim incinerator, including air emissions data.

  2) Technical protocols for investigations of the West Lincoln site.

  3) Draft borehole logs from Phase 4B drilling at the site.

4) OWMC's tests of clay permeability.

5) Plans for ground water monitoring at the site.

Biomedical Wastes

- The Waste Management Subcommittee has been investigating the management of biomedical wastes in Niagara.

Policy Plan Review

- The Natural Areas Subcommittee submitted a brief to the public meeting on the Five Year Review of the Regional Policy Plan. The brief urged that a review of the environmental policies be included. This review is now underway.

- The Subcommittee is to participate in this review and has done some preliminary work.

Planning Applications

(i) Thorold Auto Wreckers

- The Natural Areas Subcommittee reviewed plans for expansion of Thorold Auto Wreckers. It concluded that it could not see an obvious role for EEAC to play in the process at that point in time.

(ii) Lockhart Drive

- The City of St. Catharines had made application to the Niagara Escarpment Commission to have these lands designated as Escarpment Natural. EEAC recommended that the City's application be supported by the Region. After a lengthy period of discussion and review Regional Council decided not to support the application.

Sludge Management

- The Water Technology Subcommittee has reviewed various aspects of the Region's sewage sludge management program including:

    - The Sludge Investigation Program update study.

    - Sludge hauling and disposal.

    - The Class EA for a new sludge transfer site in Welland.

- The Subcommittee recommended that a staff position be created to administer this program. This recommendation has been taken up by Public Works staff.

- Members of the Subcommittee visited the labs of Pollutech, who were involved in the Region's sludge safety study, and offered comments.

- The Subcommittee received a presentation on the search for a new sludge transfer site to serve the Welland plant.

Water Quality

- The Water Technology Subcommittee was given a tour of the Trace Organics Removal Project at the Niagara Falls Water Treatment Plant. A number of questions were directed to MOE.

- The Subcommittee reviewed and commented on a report on carcinogens in drinking water.

Regional Laboratory Facilities

- Public Works staff made a presentation to EEAC on plans for a new laboratory to serve the Region's water supply and pollution control programs. Committee members provided a number of comments and suggestions.

World Conservation Strategy

- The Natural Areas Subcommittee prepared a report on the World Conservation Strategy and its relevance to Niagara.

- The Subcommittee also produced a slide show on the World Conservation Strategy. The slide show has been shown to Regional Council as well as other groups.

Workshop on Environmental Security in Niagara

- The Natural Areas Subcommittee sponsored this workshop which brought together individuals with a wide range of interests. A number of important themes emerged from the workshop. A report on the proceedings was submitted to Planning Committee. This report will be used in the Policy Plan Review.

Don Campbell

Don Campbell
Planner

0812B

Revised in accordance with amendments by Regional Council, February 14, 1989.

Regional NIAGARA

DPD 2438
February 8, 1989
File: A.34.7

Report to: Chairman and Members of the Planning and Development Committee

Chairman and Members of Regional Council

Councillors:

Appointments to the Ecological and Environmental Advisory Committee (EEAC), 1989-1991

The Ecological and Environmental Advisory Committee (EEAC) is made up of 6 Regional Councillors plus 15 members appointed from the general public. The Regional Councillors who are to serve on EEAC for the current term of Council have already been appointed.* This report deals with the appointment of members of the public.

EEAC's role is to provide technical advice to Regional Council on environmental matters. Thus the knowledge and expertise of the members of the public appointed to the Committee is particularly important.

Early in January advertisements were placed in the three daily newspapers in the Region inviting interested members of the public to apply for appointment to the Committee. In addition, members of EEAC during the last term of Council were contacted directly and asked to indicate whether they wished to be considered for reappointment. In total, over 60 applications were received. This represents a marked increase over previous years.

The Councillors who have been appointed to EEAC met on February 6, 1989 to review the applications and determine which candidates should be recommended for appointment to the Committee. Each Councillor had reviewed the applications beforehand and developed a list of 15 candidates. In doing so, the Councillors had considered the following factors: the candidate's knowledge or expertise; community involvement; environmental interests; occupation; and place of residence. Councillor Dickson, who was unable to attend the meeting, had forwarded his list to staff earlier. At the meeting these lists were tallied to identify the candidates receiving the greatest number of votes. After reviewing and discussing these candidates the Councillors arrived at a consensus on the individuals to be recommended for appointment to the Committee. Appendix 1 lists the individuals recommended for appointment, providing background information on each one.

---

* The Councillors who have been appointed to EEAC are H. Clement; M.R. Collins; F. Dickson; R. Dobrucki; E. Lancaster; and S. Pettit.

Overall the Councillors were very much impressed with the quality of the applicants and the level of interest in and enthusiasm for EEAC's activities. It was recognized that many of those who had not been selected nevertheless still had much to contribute. It was felt that it would be unfortunate if Regional Niagara did not take the opportunity to involve these individuals in EEAC's activities. Accordingly, it was concluded that those candidates who had not been selected should be invited to work with the subcommittees of EEAC on specific topics on an informal basis.

It is proposed that the first meeting of the new EEAC be held on Thursday, March 9, 1989 at 7:30 p.m.

Recommendation

1. That this report be received and that the following individuals be appointed to serve on the Ecological and Environmental Advisory Committee for the 1989 - 1991 term of Council:

   Mr. V. A. Benvenuti; Mr. Eric Bergenstein Mr. Richard Brady; Prof. Ian Brindle; Mr. Ron Caston; Prof. Michael Dickman; Mr. Mark Diffin; Dr. Ray Durham; Mr. Gregory Faraday; Mrs. Phyllis Kerkhoven; Dr. Edgar Lemon; ~~Prof. John Luik~~; Mr. Charlie Pryer; Mr. Randall Secord; Mr. Allan Veall; Mr. Warren Wiley.

   * See Note below.

Prepared by,

Don Campbell

Don Campbell
Planner

Corwin T. Cambray
Manager, Policy Planning

0962B

Respectfully submitted,

Alan Veale

Alan Veale
Planning Director

Note: Professor Luik's name was removed from the list of appointees at his request. Eric Bergenstein was appointed in his place.

Appe x 1

Candidates Selected for Appointment to EEAC

Name	Area of Expertise	Community Involvement	Environmental Interests	Occupation	Place of Residence
V. Benvenuti	Recycling Waste Management	Minister of Environment's Recycling Advisory Committee	Recycling Waste Management	Director, Planning and Administration, Quebec and Ontario Paper Company Ltd.	St. Catharines
R. Brady	Land Use/Environmental Planning and Environmental Assessment	Niagara Falls Nature Club; Friends of the Wainfleet Bog; Ontario Society for Environmental Management	General - Natural Areas, Conservation, Pollution	Environmental Planner, Proctor & Redfern	Niagara Falls
I. Brindle *	Analytical Chemistry	EEAC, NET Force, Smithville PCB Clean-up, Grimsby Landfill EA	Waste Management, Hazardous Wastes, Water Quality, Sewage Treatment	Assistant Professor of Chemistry, Brock University	St. Catharines
R. Caston	Chemistry, Effluent Monitoring	----	Waste Management and other Environmental Issues	Senior Laboratory Technician, Cyanamid Canada Ltd	Niagara Falls
M. Dickman *	Aquatic Biology	EEAC; NET Force; Technical Advisory Committee NPCA	General - Natural Areas, Waste Manage-Management, Water Pollution, Sewage Treatment	Professor of Biology, Brock University	St. Catharines

* Member of EEAC, 1986 - 1988

Appendix 1

Candidates Selected for Appointment to EEAC

Name	Area of Expertise	Community Involvement	Environmental Interests	Occupation	Place of Residence
M. Diffin	Biology, Chemistry Fishery Habitat Wetland Use	----	Pollution, Preserva- of Wildlife	Research Analyst, The Port Colborne-Wainfleet Economic Resource Centre (Gravelly Bay Project)	Welland
R. Durham *	Chemistry, Environmental Radioactivity, Environmental Impact Assessment	NET Force, EEAC	Water Quality, Sewage Treatment	Environment Canada	St. Catharines
G. Faraday	Resource Management (lands and forests)	----	General	Worked In Chemical Industry; Resource Management, Ontario Ministry of Natural Resources	Fort Erie
P. Kerkhoven *	Prepared Briefs on Environmental Problems	Environment Committee, St. Catharines Local Council of Women	General	Clerk, Regional Health Services	St. Catharines
E. Lemon	Environmental Physics; Chemistry, Solar Energy; Pesticides	Secretary, NET Force	Pollution Waste Management	Retired Professor of Environmental Physics, College of Agriculture, Cornell University	Niagara-on-the-Lake
J. Luik	Environmental Ethics	----	General	Assistant Professor of Philosophy, Brock University	St. Catharines

Ap x 1

Candidates Selected for Appointment to EEAC

Name	Area of Expertise	Community Involvement	Environmental Interests	Occupation	Place of Residence
C. Pryer *	Natural History	Federation of Ontario Naturalists, Niagara Falls Nature Club, EEAC, other groups	General - Conservation, Natural Areas Education, Pollution	Insurance Agent	St. Catharines
R. Secord *	Geology, Hydrogeology	EEAC	Waste Management, Sewage Treatment, Water Quality and Treatment	Engineering Technologist, McGlone & Assoc.	Ridgeville
A. Veall *	Natural History, Physics	Niagara Falls Nature Club, EEAC	General - Natural History, Conservation	High School Principal (Retired)	Niagara Falls
W. Wiley	Agriculture, Land Use Planning	Niagara North Federation of Agriculture, Former Regional Councillor	General - but especially environmental matters related to agriculture	Farmer	St. Catharines

#9

PURCHASING'S ENVIRONMENTAL ROLE

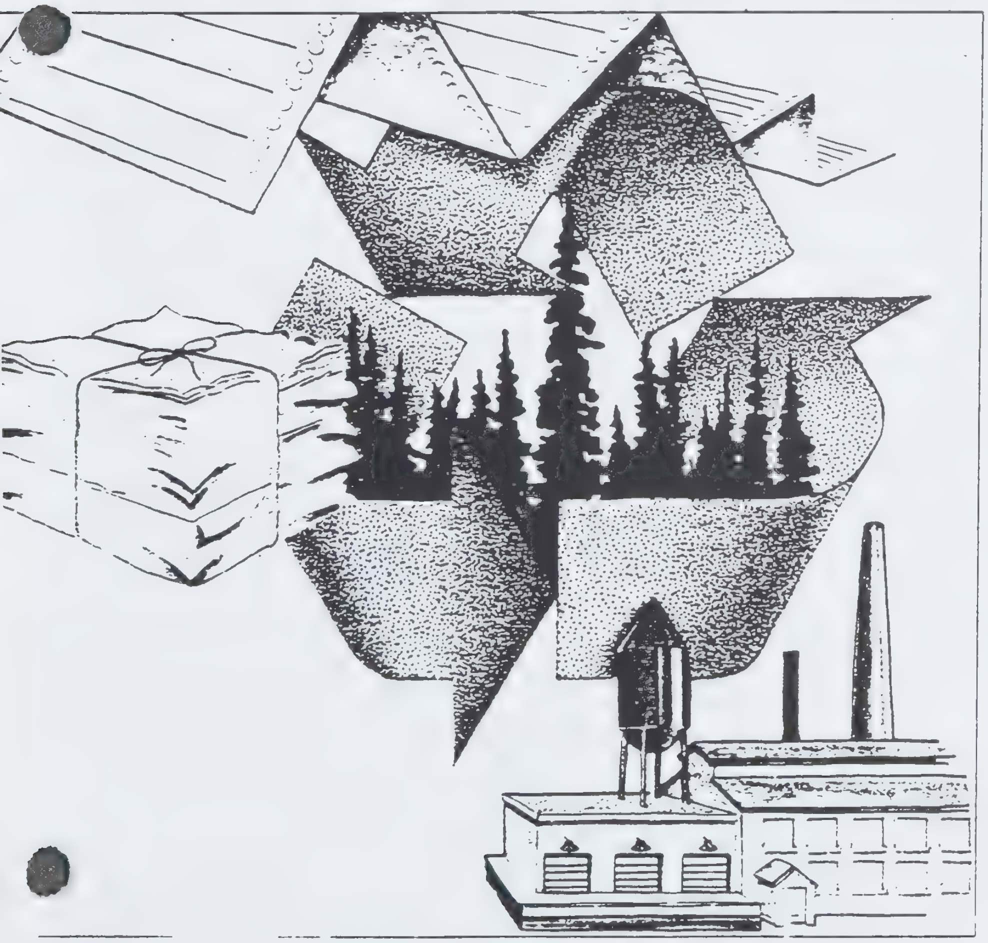
Recycling is no longer a luxury - it's a necessity

By Dan Remington

Purchasing environmentally-friendly products and recycling materials used to be nice things to do. Today, it's a necessity; in the future it will be a legal requirement.

It isn't good enough any longer to simply bundle your newspapers for recycling or to return your empty bottles for a refund. Recycling has become a fine art, a matter of social conscience certainly, but more accurately a way of thinking, a way of living and a way of purchasing.

In today's world where the preservation of our environment is a top priority, developing and maintaining an environmental awareness and accepting responsibility for protecting our depleting resources is no longer the exclusive bailiwick of the long haired, organic food freaks. It is now a joint responsibility of consumer, industry and government. And if you still think that as a buyer you have no obligation to contribute to the waste management and reduction efforts, you're purchasing in the wrong decade.



Just as energy conservation became the model for doing business in the 1970s, so recycling and reduction of our waste materials is the direction society is heading. And because what goes out in the dumpsters is usually material that has been procured through purchasing, the role the buyer will play will continue to grow.

As Jack McGinnis, executive editor of the Ontario Recycling Update newsletter, puts its: "At the beginning of the last decade we couldn't sell recycling on a large scale any better than we could sell swamp land in Florida." Today, the Recycling Council of Ontario sells T-Shirts and buttons that state 'Recycle Or Die.'

Recycling is a byword in industry if for no other reason than the fact that garbage is expensive. Getting rid of it is costly and sometimes virtually impossible, and if industry isn't going to clean up its act on its own, government is going to enforce it.

Take the Nova Scotia government, for example. Environment Minister John Leffe recently asked local industry to contribute $7 million toward launching a multi-material curbside reduction program with the underlying warning that if industry did not respond, "the province will act unilaterally and impose regulations that could include the banning of products and deposits on various forms of packaging."

Landfill sites, particularly in Ontario, have already begun banning certain materials such as corrugated cardboard, and those taboos will be expanded in the future says Joe Hall who is in charge of solid waste management at the Metropolitan Toronto Industrial Waste Reduction Centre. In 1988, businesses in Toronto and the regions of Durham and York generated more than one and one half million tonnes of garbage and there is simply no place to put it.

The message is clear: Start recycling and reducing waste or suffer the consequences.

And it's not just the government. Private sector companies are getting in on the act of enforcement. Trusco Desjardins in Quebec is developing programs that reward good environmental performance with preferential loan terms and consideration. Following policies from its parent, Mouvement Desjardins, the company prohibits loans to companies that don't comply with provincial environmental regulations.

EthicScan Canada Inc. of Toronto is doing a booming business by providing potential financial investors with an environmental report card of different companies. Founder David Nitkin says many investors are making decisions based upon good performance. Many people don't want to invest in companies which damage our environment.

Becoming environmentally conscious is an economic reality as well. Consumers are basing their buying decisions on the performance of environmentally-friendly companies and certainly the media is quick to publicize those who damage our resources, investors are making million dollar decisions based on the environmental and social consciousness of industries, and governments are doling out grants and contracts based upon a company's environmental friendliness.

But the sad fact is that Canada is way behind in the recycling effort, although we produce twice as much garbage per capita than many other countries. And government is lagging in enforcing regulations and developing programs that would encourage companies to practiseenvironmentally-friendly policies. But that, too, is changing

Pat MacFarlane, who's with the Recycling Council of Ontario, says that in the U.S., preferential government purchasing is more advanced than in Canada. For example, in some states, paper must be at least 50 percent recycled. The Canadian government is looking at instituting similar preferential policies as well as looking at purchasing products that are recycled and recyclable. Companies vying for lucrative federal government contracts will soon have to make their products environmentally friendly or risk losing business

Resource Directory

There are a number of provincial and national organizations which offer information and technical services on industrial waste reduction and recycling. Local municipalities usually employ recycling coordinators who can also provide a wealth of information.

■ Canadian Association of Recycling Industries (CARI) is an industry association, representing more than 300 Canadian recycling companies, recycling a wide variety of materials including ferrous and non-ferrous metals, paper, textiles, auto parts, plastic and glass. CARI provides information on regional market conditions, business opportunities and news about the industry.

Canadian Association of
Recycling Industries
Suite 1620, 415 Yonge Street
Toronto, Ont. M5B 2E7
Stan Parker (416) 595-5552

■ Canadian Waste Materials Exchange is a national program established in 1976 which facilitates waste exchange. Through a bi-weekly bulletin, the Exchange lists their waste material available or wanted categories. All information, both hazardous and non-hazardous, is coded to ensure company confidentiality. Annual subscriptions are $40.

Canadian Waste Materials
Exchange
c/o Ontario Research Foundation
Sheridan Park Research Community
Mississauga, Ont. L5K 1B3
Bob Laughlin (416) 822-4111

■ Metropolitan Toronto Industrial Waste Reduction helps businesses reduce the quantity of non-hazardous solid waste requiring disposal by assisting industry in locating markets for their materials. The staff will also conduct waste audits on request, help industries develop methods for reduction at source and identify any potentially recyclable materials. The staff works closely with the Ontario Waste Exchange, Ministry of the Environment and local recycling firms.

Metropolitan Toronto Works
Department
439 University Ave.
Toronto, Ont. M5G 1Y8
Mary Stewart (416) 392-6697

■ On-Site is a federal program that assists companies in improving their waste management by placing unemployed engineering graduates and technicians with companies for a six-month period to carry out waste management related activities. Salaries are paid by Unemployment Insurance and the program is sponsored and managed by Energy Pathways Inc. of Ottawa. On-Site employees analyze waste streams and develop programs for reducing or recycling waste. The program is open to any private sector firm.

On-Site
1179 King Street West,
Suite 110
Toronto, Ont. M6K 3C5
Glen Pleasance (416) 533-8888

■ Pollution Probe can provide information on recycling hazardous and non-hazardous waste as well as on strategies. The group has produced the Canadian Green Consumer Guide, a handbook on how to make ecologically safe purchasing decisions as well as Profit from Pollution Prevention, a manual on waste reduction and recycling aimed at business and industry.

Pollution Probe Foundation
14 Madison Ave,
Toronto, Ont.
(416) 926-1907

■ Friends of the Earth is an advocacy, research and education association which identifies companies which produce environmentally-friendly products.

Friends of the Earth
251 Laurier Ave. W, Suite 701
Ottawa, Ont. K1P 5J6
(613) 230-3352

■ Recycling Council of Ontario is a non-profit organization which promotes the three R's of waste management: Reduction, Reuse and Recycling. RCO represents individuals, various levels of government, a cross-section of industries, recycling operators and environmental and community organizations.

Recycling Council of Ontario
P.O. Box 310
Station P
Toronto, Ont. M5S 2S8
(416) 960-1025
1-800-263-2849

to more socially responsible rivals.

No recycling, no business. It will be as simple as that, and it's only going to escalate in the coming decade as the world realizes that it can no longer pollute the air, fill in landsites with millions of tonnes of garbage, fill our soils with harsh chemicals or dump hazardous goods where they will poison our rivers, lakes and streams.

Government is slowly coming up with some programs to help. In Ontario the Ministry of the Environment is co-ordinating an Environmental Technologies Program designed to assist companies in the research and development of environmentally sound production machinery and processes. In addition, $300 million in loan guarantees will be made available under the Loans for Environment Defense (LEND).

Municipalities are perhaps at the forefront of this movement. After all, they are the frontliners in the battle of where to put the garbage. Provincial governments are next, and they are the ones who in the coming years will be creating laws enforcing recycling and waste reduction efforts. The federal government is slowly getting in on the act, but their chief blow will be to the pocketbook -- no recycling, no using recycled material, no fat government contracts.

Purchasing plays a key role in an environmentally-friendly approach to doing business in the 1990s. While it may not be the responsibility of the buyer to actually co-ordinate or operate a recycling program, the way one buys can have a major effect on the success or failure of any recycling efforts.

There is no magic formula to buying environmentally friendly. In many instances it's simply common sense. You can conduct a pretty impressive inventory by taking a look in the dumpster. How much paper, how much plastic, wood, metals and other recyclable material are you tossing out each day? How can you deal with it? How can you reduce it?

The fact is that buyers can either add to the problem or be a major part of the solution. But where do you start?

An effective waste management system starts with the proper analysis of the waste, knowing what you're throwing out and determining what you can control, reuse and reduce.

A recent publication from the U.S. Environmental Protection Agency suggests that questions should be formulated within each of the following areas in order to identify and screen waste management opportunities:

- Management initiatives
- Inventory and feedstock control
- Waste stream segregation
- Material handling improvements
- Scheduling improvements
- Spill and leak improvements
- Preventive maintenance
- Process documentation
- Employee training

And a good rule of thumb to follow comes from the International Coalition of Procurement Standards. The ICPS suggests a hierarchy for waste management:

- Reduce
- Reuse
- Recycle
- Incinerate
- Landfill

The ICPS encourages purchasers to buy with that hierarchy in mind: For waste reduction, two-side photocopiers and washable, not disposable, linens, reusable containers; for recyclability, aluminum packaging for reheated food, white scratch and phone message pads; buying reused or rebuilt items like telephones, computers, transformers and automobile parts; and buying recycled garbage bags and paper.

Purchasing environmentally friendly could begin as simply as specifying recycled products on the tender or asking that a printer use recycled paper.

The Canadian government is also going to make it easier to recognize environmentally sound products with a seal of approval which will be displayed on automobile oil made from re-refined oil, insulation which uses recycled paper and on goods which contain recycled plastics.

The federal government recently honoured Mohawk Oil Co. Ltd., of Burnaby B.C. with its first annual Environmental Achievement Award for its efforts to cut down on the amount of waste oil that is burned, dumped, poured into sewers or sprayed on roads. Through a widespread collection system, Mohawk gathers more than 18 million litres of used oil from the province and processes it into higher grades of lubricating oil.

On the municipal level, many engineering departments can help as well. The Metropolitan Toronto Works Department, for example, produces a recycling markets directory of where to recycle products such as asphalt, concrete and clean fill, drums, food and organic waste, glass, metal, plastics and rubber, textiles, waste paper and wood.

The Solid Waste Management division will provide staff at no cost to help establish a waste identification plan. If you're not sure where to start, staff can conduct a waste audit at your site to help develop methods for waste reduction at source and well as develop an office paper recovery program and diversion strategies for other products.

Four Ontario municipalities have collaborated on a video, 'Pulling Together', which introduces companies to reduction, reuse, recycling and recovery and details programs and support services that are available. The videos can be borrowed from the municipalities of Toronto, Peel, Guelph or Waterloo or a 21-day period or purchased for $25

How to get started

Starting up a recycling program, even in a small company, is relatively simple. Even reducing your waste by a small amount helps.

Education is a key factor. Recycling simply won't work if staff isn't behind the plan although there is the advantage that more people are environmentally aware today.

Staff motivation also plays a key role in the success of a recycling program. Central Guarantee Trustco has initiated an environmental committee, which takes internal savings from recycling and waste disposal programs and uses those funds to generate other environment-enhancing internal programs -- new water coolers, expanded fitness programs. At Boeing (see box), management is considering donating the money saved from recycling to a charitable organization.

On the down side, the smaller the company, the more difficult it is to develop successful recycling programs. The main problem is not gathering the material, but gathering enough.

Depending upon the product, recycling companies have minimum pick-up requirements which many small companies cannot meet or do not have the storage space to hold until they do reach the minimum loads. But there are always some things you can do. Here are a few example of how to approach recycling:

- Recycle corrugated cardboard.
- Start a paper recovery program. It's estimated that the average office worker throws out one quarter kilogram of paper every day.
- When possible purchase recyclable products and goods that contain recycled materials.
- Purchase reusable china cups and mugs instead of disposable foam or plastic.
- Start having reports printed on both sides and circulate them rather than produce individual copies.

The Boeing Experience

When asking about successful corporate recycling programs, the name of Ed Dukes often comes up. He's facilities supervisor and chairman of the conservation committee at Boeing of Canada, deHavilland division in Toronto. To Dukes, recycling is second nature. "When I grew up in Ireland, we recycled everything."

The Boeing recycling project began last September with the recycling of all corrugated cardboard, computer printout paper and general office and photocopier paper. By the end of the year, Boeing had collected and recycled 24 tons of each.

As of May, the company had recycled 75 tons of corrugated, 50 tons of computer printout paper and 45 tons of office paper. Those efforts are now raising from $5,000 to $6,000 each month "in addition to what we have saved on dumping costs, about $35,000," Dukes says.

Education is crucial to success, Dukes says. The Boeing program started with the conservation committee comprising representatives from every department. The committee developed a manual which outlined do's and don'ts and why recycling was important. In addition, Boeing produces a monthly newsletter which features a regular recycling update. Cardboard boxes which are placed at every desk for recycling have instructions printed on them. "It's important to keep updating people regularly," Dukes says.

The program has been expanded to pop can recovery, about 100,000 a year and will soon include about 60,000 pop bottles. Boeing is recycling all metals and aluminum chips further expanding the program to wood scraps, crates and pallets.

"We will be working closely with purchasing to start buying recycled paper and we will be looking to reducing our cardboard and wood packaging by using reusable containers and returning these to source. Even if we break even in order to return these, we will saving the environment."

Several industries, too, are helping buyers become more environmentally friendly.

The Environment and Plastic Institute of Canada (EPIC), a division of the Society of the Plastics Industry of Canada, acts as a resource centre for information on recycling, degradability of plastics and related topics. According to Executive director Dr. Fred Edgecombe, EPIC works to 'persuade package designers to show consciousness of environmental concerns and support for anti-littering programs. At the recent Plast-Ex '89, EPIC's exhibit reflected the plastic industry's commitment to achieving "a clean environment and its resolve to become even more involved in the search for solutions."

An Aerosol Recycling Task Force has recently been formed with representatives from the Canadian Aerosol Information Bureau, the Aerosol division of the Canadian Manufacturers of Chemical Specialities, the Canadian Tinplate Recycling Council and the Ontario Multi-Material Recycling Inc.

The bottom line is that there is no excuse for buyers not to become more environmentally aware and to incorporate that into their purchasing decisions.

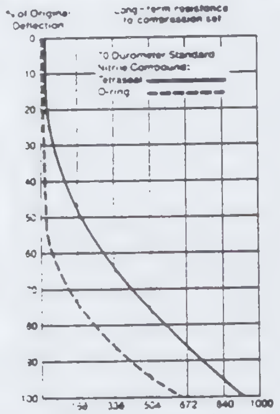
And if you don't today, you will in the future because you'll have to.

ARE YOUR SEALS BEING SQUEEZED, NIBBLED, AND DEGRADED?

Seals can fail for a lot of reasons. Stress caused by squeeze. Extrusion and nibbling caused by pressure. Permanent deformation due to material degradation.

Fortunately, you can prolong seal life—and save money—by using Goshen Rubber lathe-cut Tetraseals! Tests show that Tetraseals perform better than O-rings under stress and can withstand pressures at least 25 percent higher.

Don't sit still for seal abuse. Call or write for your personal copy of the Manual of Tetraseal Design.

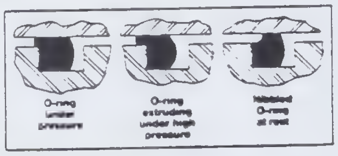


GOSHEN RUBBER

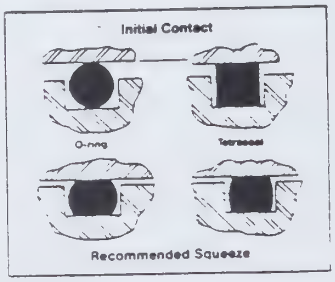
Goshen Rubber of Canada, LTD
100 Stafford Drive
Brampton, Ontario L6W 1L4
(416) 457-5843

Tetraseals provide excellent resistance to compression set caused by material degradation.

When pressure exceeds the seal's capacity to bridge the gap, extrusion and nibbling result. Tetraseals can withstand pressures at least 25 percent higher than O-rings.



The Tetraseal deforms less under squeeze, minimizing internal stresses and lessening the tendency for the material to age prematurely.



Circle Reader Service card No. 12

THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

Department of Engineering
71 Main Street West, Hamilton, Ont. L8N 3T4 (416) 526-4170

#10

Refer to File No. E309-20C
Attention of V. Terluk
Your File No.

November 17, 1989

Mr. Chairman and Members
Engineering Services Committee

ENG. 89-623

Home Composting Program

Members of the Committee:

Origin

Regional Council, at its meeting of October 30, 1989, endorsed the implementation of a Home Composting Program. This report outlines the proposed implementation plan for the Program.

BACKGROUND

Home composting has been recognized by Regional Council as a viable way to reduce wastes requiring landfilling while allowing residents to become personally involved in one particular solution to the global waste management problems facing society.

It is estimated that home composting will divert approximately 150 kilograms per household per year of garbage from being landfilled.

ANALYSIS

The Home Composting Program is open to all residents of the Region living in dwellings where home composting is feasible. Only one composter will be provided per dwelling.

The compost units will be offered for sale to residents at 25% of the actual purchase price plus delivery costs.

Cont'd...

Home Composting Program

Cont'd...

Analysis (Cont'd)

It is suggested that initially 5,000 compost units be made available on a "first come - first serve" basis. In the Metro Toronto home composting program, less that 1% of Metropolitan Toronto's population ordered a compost unit. Based on this information and the Region's population of 410,000, it was felt that 5,000 units should adequately serve Regional requests and it will not be necessary to allocate a specific number of composters to a municipality on the basis of population. Should more than 5,000 applications for composters be received, staff will be requesting the Committee and Regional Council to authorize an extension to the program to purchase additional units.

The Town of Ancaster has requested that it be guaranteed 500 composters as Town Council had approved the purchase of this number for its residents prior to the Region assuming responsibility for the composting unit purchasing process.

In determining the most suitable unit several commercial composters were considered. An evaluation of price, quality, availability, and aesthetic appearance indicates that the "Soilsaver" composter manufactured by Barclay Horticultural Manufacturing Limited in Downsview is most suitable.

The "Soilsaver" composter has a 5 year manufacturer's guarantee and is made of plastic containing 50% recycled plastic. Its dimensions are 28" x 28" x 30". The unit comes in a cardboard carton and requires simple assembly.

The compost units are black in colour and will be stamped with the Regional logo and the words "not for resale". The units also come with a composting guide which will be printed with the Regional logo. A copy of the guide is attached.

Residents will obtain composters by filling out an application form and sending the application form along with advance payment for the composter to the Region's Engineering Department. When payment is received a four part receipt will be issued. Staff are currently working in conjunction with the Regional Finance Department to prepare appropriate forms.

Cont'd...

Home Composting Program

Cont'd...

Analysis (Cont'd)

The application forms will be available as cut-out advertisements in The Spectator and Brabant newspapers. The ads will run in the Spectator on four occasions (January 10, January 24, February 7, February 21) and in the Brabant papers on two occasions (January 10, February 7). Additionally application forms will be available at all municipal offices.

Although the newspaper advertisements will serve to promote the program, it is expected that coverage of the Program as a newsworthy issue by local television and radio stations will also assist in this capacity.

Orders for the compost units will be received starting January 15, 1990 through to March 9, 1990. Orders received after this date will not be considered. The compost units will be distributed between late March and early April 1990.

All of the Compost units will be delivered, either by local municipal forces or courier. The composter will be sold at $15.00 per unit which includes delivery costs.

Financial Implications

The "Soilsaver" composters are $49.37 per unit based on an order of 5,000 units. The total costs for 5,000 units will be $246,850.00. Newspaper advertising will be approximately $10,000.00. Other costs of the program include additional clerical support, special forms, postage, copies, and envelopes. The total program cost will be $263,000.00.

Funding has been requested from the Ministry of the Environment (MOE) for 50% of the cost of the purchase of the compost units only. Other costs associated with the Program are not eligible for funding by the Ministry.

Cont'd...

Cont'd...

Financial Implications (Cont'd)

The compost units will be offered for sale at $15.00 per unit which includes $12.34 for the unit (25% of the purchase price) and $2.65 to cover delivery costs.

Each area Municipality has agreed to distribute the compost units to its residents and will be paid $2.65 per unit for this purpose. If for any reason municipalities are unable to deliver the composters, a courier will be utilized. If this option is used it will add an additional $7,000.00 to the program cost which the Region will be required to absorb.

The net cost of the program, after MOE funding and revenues from the sale of the composters, will be $85,000.00.

Recommendations

That:

i) The Commissioner of Engineering be authorized to order 5,000 "Soilsaver" compost units from Barclay Horticultural Manufacturing Ltd. at a cost of $49.37 per unit.

ii) The "Soilsaver" compost units be offered for sale to Regional residents at $15.00 per unit.

G.S. Spencer
Commissioner of Engineering

EG/md
Attach.

cc: W.M. Carson, Chief Administrative Officer
cc: R.J. Whynott, Regional Chairman

OFFICE OF THE MAYOR
Stanley R. Napper

The City of Stoney Creek

777 Highway No. 8, Box 9940, Stoney Creek, Ontario L8G 4N9
Telephone (416) 643-1261 Telecopier (416) 643-6161

FILE NO. E 309 - 20C
LETTER NO. 89-5178
NOV 1 [illegible]

ENG. PLAN		REF
ENG. OPER.	1	Gds ANS. BY
E..		FILED BY
R..		
A..		

V.T.

November 9, 1989

G.S. Spencer, P. Eng.
Commissioner of Engineering
Regional Municipality of Hamilton-Wentworth
P.O. Box 910
Hamilton, ON

Dear Mr. Spencer:

Re: Composting

This letter will confirm my verbal conversation with Councillor Cooke of November 7, 1989.

According to Councillor Cooke's address to the Hamilton Rotary Club, the Region is going to purchase 5,000 hi-tech home composting units with a market value of about $60. each and sell them for $15. each on a first-come, first-served basis.

I would like to suggest that in all fairness the 5,000 units be allocated to each of the area municipalities on a pro-rata basis either on the number of households or on the basis of each area's financial contribution to the Region's Budget; the first suggestion being the most logical to my mind.

Speaking for my municipality, we would be pleased to assist with the sale of units allocated to Stoney Creek by having them for sale at our municipal office. If each municipality were to do the same, people from the outlying areas of the Region wouldn't have so far to travel in order to avail themselves of this worthwhile opportunity.

I would appreciate you bringing this matter to the attention of the Engineering Services Committee.

Sincerely,

Stanley R. Napper
Mayor
Chairman Reg Whynott and
cc. to all Member of Regional Council

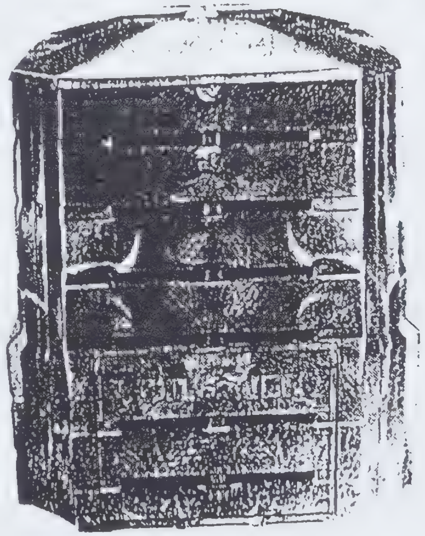
Environment
Ontario

The Metropolitan Toronto Home Composting Program
has been funded by the Municipality of Metropolitan Toronto
and the Ontario Ministry of the Environment.

recycled paper

Metropolitan Toronto Home Composting Program

Ministry
of the
Environment
Ontario



Your Guide to Composting with the Soilsaver™ Composter

Dear Homeowner:

Now more than ever it makes sense to compost.

At Barclay Horticulture, we have taken this concept seriously for more than ten years. Today we realize the fantastic contribution it can make to waste management and to the ultimate reduction in landfill sites.

The SOILSAVER™ was developed and is made in Ontario by a Canadian-owned company. It is partially made of consumer-used, recycled polyethylene resin, and carries a warranty of five years.

This composting guide book has been prepared to assist you in using your SOILSAVER™. We hope you will find it useful. We've tried to anticipate many of the most common questions you may have, but realize you may have others. If you require further assistance, please call the SOILSAVER™ HOTLINE, at 736-6149, or write to us at:

230 Canarctic Drive
Downsview, Ontario
M3J 2P4

We will do our best to help you.

Sincerely

John L. Barclay

John L. Barclay, President
Barclay Horticulture Mfg., Ltd.

What is Composting?

Composting turns kitchen and yard waste into dark, nutrient-rich, earth-smelling soil conditioner. If you have a garden, a lawn, trees, shrubs or even plant boxes you can use this conditioner to improve the soil and the plants growing in it.

Why Should I Compost?

It's easy, and by using compost you return organic matter to the soil in a usable form. Organic matter in the soil improves plant growth by:

- helping break down heavy clay soils,
- adding water and nutrient-holding capacity to sandy soils, and
- adding essential nutrients to any soil.

Rich organic soil helps produce healthy plants. Healthy plants help clean our air and conserve our soil.

By recycling organic materials, composting can cut down on your household garbage. In fact, if you compost kitchen and yard waste, in addition to recycling newspapers, bottles and cans, you can cut your waste almost in half! If all your neighbours did this too, it would dramatically reduce the amount of household garbage going to our rapidly-filling landfill sites.

What Can I Compost?

One third of your household garbage can be composted!

Yard wastes such as fallen leaves, grass clippings, weeds before they seed, and the remains of disease-free garden plants, make excellent compost. You can also compost kitchen scraps such as fruit and vegetable peels and trimmings, egg shells and coffee grounds. Don't compost meat, bones or fatty foods such as cheese, salad dressing or leftover cooking oil, as they may attract pests.

How Do I Compost?

The composting process requires:

- organic material
- moisture
- air
- soil (optional).

You don't have to do much more than alternate layers of organic waste, keep moist and turn frequently. It is helpful, although not essential, to add thin layers of soil in order to add micro-organisms to the pile.

The composting process will be more efficient and effective if you follow these suggestions.

- To help get things started, make a layer of a nutrient-rich material such as your own finished compost, composted cow or sheep manure, bone meal or a commercial starter (available at garden centres).
- Continue to layer kitchen waste, yard waste and soil until the composter is full. It is important to use some materials with a high carbon content such as leaves, as well as some materials with a high nitrogen content such as kitchen scraps and grass clippings. For more details, see page 8.
- Keep the material as moist as a squeezed-out sponge. Use a cover to keep the pile from becoming too wet from rainfall. Occasional watering may be required to moisten the pile if it becomes too dry.
- Turn the material (at least four or five times during the summer) with a pitchfork or shovel so it's well aerated. You can turn the pile once a week but more frequent turning may prevent the pile from heating up.
- Remove finished compost through the convenient doors at the base of the Soilsaver™.

How Long Will It Take To Make Compost?

This will vary. If your kitchen and yard waste is in small pieces, the process will be faster. Similarly, frequent turning to aerate will speed the process.

With the Soilsaver Composter, finished compost can be produced in as little as two months.

Will It Smell?

A compost pile that is working well should not have an unpleasant odour. If it does, it may be that the material is too wet or too compacted. Turn the pile frequently to allow it to dry out a bit and to ensure that it is well aerated. Adding dry organics such as autumn leaves can help absorb excess moisture.

What Is The Best Location For Composting?

Choose a level, shaded spot, on earth and convenient to the house for adding kitchen waste.

Can I Compost Pet Waste?

No. Both dog and cat feces may contain organisms that can cause disease in humans.

Will Composting Attract Animals?

To lessen this risk . . .

- When adding food waste, either dig it in immediately or cover with soil. You may find it easier to collect food waste by the kitchen sink in a plastic container with a lid for a few days before taking it out to the compost bin.
- Do not add meat scraps or fat to your compost pile.
- Take all measures outlined in this booklet to ensure fast composting: correct mix of materials and good air and moisture levels.

Can I Compost Wood Ashes?

Yes, wood ashes from a fireplace or stove are a good source of potash. It is best to add many thin layers as the potash leaches out easily. Do not, however, compost charcoal or coal ashes.

How Can I Discourage Flies?

Dig in food waste each time you add it, or cover it with soil.

Can I Compost Weeds?

To prevent contaminating the soil with weed seeds, do not put ripened weeds in the compost heap. If the weeds are green and the seeds have not matured, they may be safely added to the compost heap.

What About Grass Clippings?

Each spring and early summer, we all have mounds of fresh cut grass. Grass is about 60% water and 40% cellulose and packs into dense layers, which limits oxygen penetration. The net result is an anaerobic condition, producing terrible odours. Clippings should be left to dry in the sun before being added to the composter, or should be mixed with last year's leaves in a 50:50 ratio.

What Can I Do With Leaves?

If you are lucky enough to have an abundant supply of leaves you can make superior compost and leaf mould. Ideally, the leaves should be saved to be mixed in with nitrogen-rich grass clippings and weeds in the spring and summer. Being high in carbon, leaves form the correct balance for superior compost.

Excess leaves kept from the fall decompose into fluffy, dark brown leaf mould with that lovely earth aroma, just as you find on the forest floor. Leaf mould is ideal for weed control on flower beds and as a moisture retaining mulch, especially for long dry spells, when plants need it most. If you have too many leaves to use yourself, put the excess out for municipal leaf composting collection.

Can I Compost In Winter?

For Winter composting just build a base of Fall leaves, about twelve inches high, at the bottom of the composter. Continue to add kitchen scraps all through the Winter. After spring thaw, the decomposition process will become active again.

Principles Of Composting

This section is for those who would like a better understanding of how composting works.

The compost pile is really a teeming microbial farm. Bacteria start the process of decaying organic matter. They break down plant tissue and are effective composters. Fungi and protozoans soon join the bacteria and, somewhat later in the cycle, centipedes, millipedes, beetles and earthworms do their part.

Anything growing in your yard is potential food for these tiny decomposers. Carbon and nitrogen, from cells of dead plants and dead microbes, fuel their activity. The micro-organisms use the carbon in leaves or woodier wastes as an energy source. Nitrogen provides the microbes with the raw element of proteins to build their bodies.

Everything organic has a ratio of carbon to nitrogen (C:N) in its tissues; grass clippings, for example, have a C:N of 25, meaning there are 25 parts carbon to one part nitrogen.

Average C:Ns for commonly composted materials are:

oak leaves	50
ash leaves	25
sawdust	150-500
vegetable trimmings	15-25
pine needles	60-110

The ideal C:N is around 30. The C:N need not be exact, and you are unlikely to have a precise way to measure it anyway. If you are having problems with your compost pile, however, it may be because you have too little of one type of material. If, for example, you have mostly materials which are high in carbon, such as sawdust or dry leaves, composting may be very slow; adding some materials high in nitrogen such as grass clippings or kitchen scraps, will speed things up. If your pile is giving off an odour of ammonia, the problem may be an excess of materials high in nitrogen; simply add some high carbon materials.

Layering can be useful in arriving at the correct proportions, but a complete mixing of ingredients is preferable for the composting process.

Surface Area

The more surface area the micro-organisms have to work on, the faster the materials are decomposed. It's like a block of ice in the sun — slow to melt when it's large, but melting very fast when broken into smaller pieces. Chopping your garden wastes with a shovel or axe, or running them through a shredding machine or lawn mower will speed their composting.

Volume

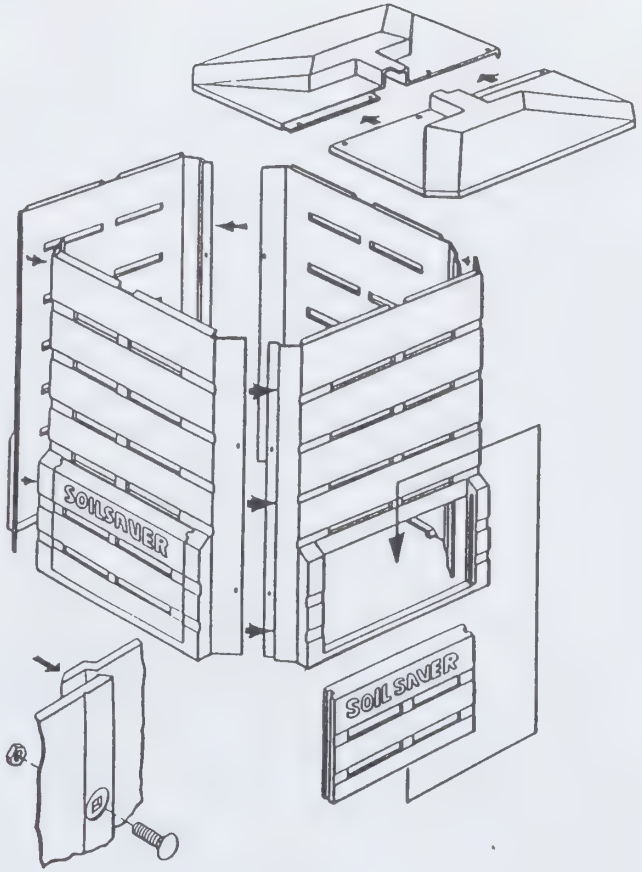
A large compost pile will insulate itself and hold the heat of microbial activity. Its centre will be warmer than its edges. Piles smaller than 1 metre cubed will have trouble holding this heat, while piles larger than 2 metres cubed won't allow enough air to reach the microbes at the centre. These proportions are of importance only if your goal is a fast hot, compost.

Moisture and Aeration

All life on earth needs a certain amount of water and air to sustain itself. The microbes in the compost pile are no different. They function best when the compost materials are about as moist as a wrung-out sponge, and are provided with many air passages. Extremes of sun or rain can adversely affect this moisture balance in your pile.

Time and Temperature

The faster the composting, the hotter the pile. If you use materials with a proper C:N ratio, provide a large amount of surface area and a big enough volume, and see that moisture and aeration are adequate, you will have a hot, fast compost (hot enough to burn your hand!) and will probably want to use a multi-unit container. If you just want to deal with your yard waste in an inexpensive, easy, non-polluting way, a single-unit container will serve you well.



Note:

Packaging of the Soilsaver Assembly Parts is done by ARC Industries. A Self Help Agency for Canadian Adults, who strive to achieve their very best.

With this in mind, if your Soilsaver is not complete in the package please contact us directly and we'll correct the inconvenience as quickly as we can.

SOILSAVER ASSEMBLY SHEET

PARTS LIST

PART #	DESCRIPTION	QTY
1501	SOLID SIDE	2
1502	DOOR SIDE	2
1503	DOORS	2
1504	LID HALVES	2
1505	¼″ CARRIAGE BOLT & HEX NUT ASSEMBLY	12

LID ASSEMBLY: Push the two halves (1504), then insert the carriage bolt from the top and hand tighten nut onto bolt. It is best to insert the two inner nuts and bolts first.

SIDE ASSEMBLY: All sides are interchangeable. Position door-sides in convenient location. Connect sides by putting the flat edge with the square indent for the carriage bolt on the outside, over the lip edge of adjoining side. Insert carriage bolt from the outside and hand tighten bolt onto nut. Repeat with each side until unit is complete. Tighten all nuts firmly.

LOCATION: Unit must be on level ground or the lid won't fit properly.

Troubleshooting Chart

Symptoms	Problem	Solution
The compost has a bad odour.	Not enough air, or too wet.	Turn it.
The centre of the pile is dry.	Not enough water.	Moisten materials while turning the pile.
The compost is damp and warm in the middle, but nowhere else.	Too small.	Collect more material and mix the old ingredients into a new pile.
The heap is damp and sweet-smelling but still will not heat up.	Lack of nitrogen.	Mix in nitrogen source such as fresh grass clippings, fresh manure, bloodmeal, or a commercial fertilizer high in nitrogen.

We thank the Metropolitan Toronto Works Department for permission to adapt portions of their backyard composting booklet.

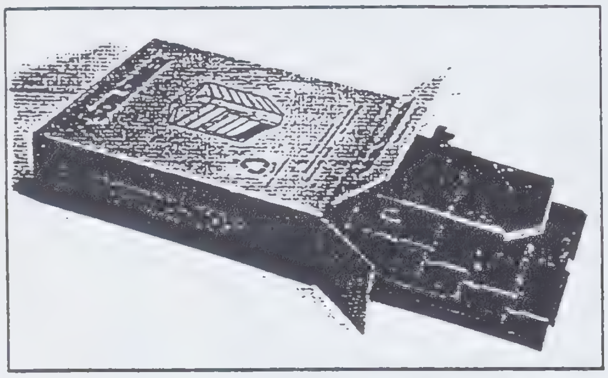
The Natural Choice

Soilsaver Can Reduce Your Curbside Garbage By 40% And Improve Your Garden, Naturally.
SOILSAVER
GARDENA
SOILSAVER

SOILSAVER™

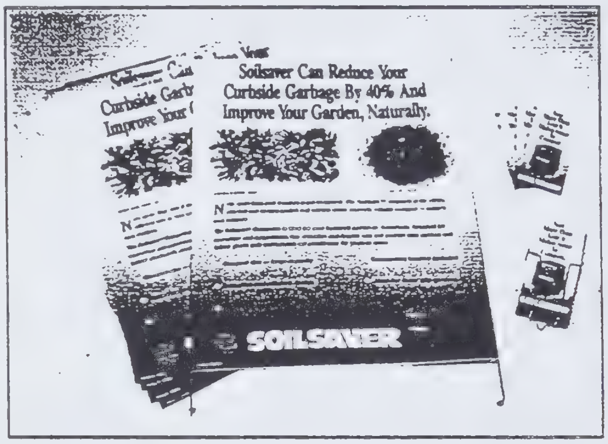
America's Number One Home Recycling Tool

For You, Your Customers, Our Environment,
Capitalize On The Concern



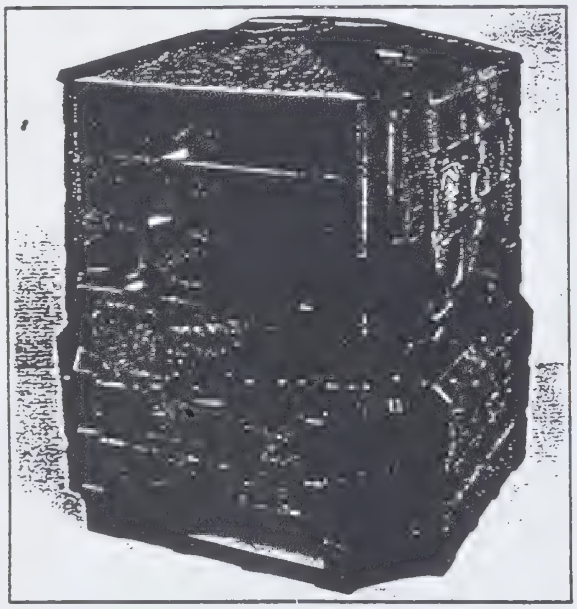
THE PACKAGE

Manageable size
Easy to transport
Allows for self-serve
Stackable at P.O.P. display


Soilsaver Can Reduce Your Curbside Garbage By 40% And Improve Your Garden, Naturally.
SOILSAVER

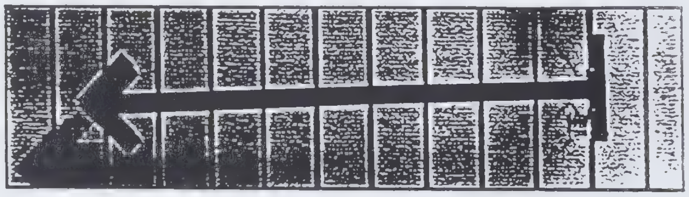
THE SUPPORT

Attractive four-colour display poster
Four-colour flyer, in rack,
mounted directly to display unit
Advertised in Horticultural Magazines
Recommended in gardening editorial



THE **SOILSAVER**™ SS1512

Appealing design - enhances all urban gardens
Five year manufacturer's guarantee
Unique flow-through design
Proven over 10 years use
Composting guide including with each unit
Twenty-seven pounds of UV inhibited polyethylene



THE EZY COMPOST TURNER SSCT29

Rust inhibited laquered steel
Important compost mixing made easy

THE SEASON

SOILSAVER collects biodegradable waste year round.
SOILSAVER WILL SELL YEAR ROUND

PRINTED IN CANADA

Model Number	Unit Size	Carton Size	Shipping Weight	Quantity
SS1512	28″ x 28″ x 30″	23″ x 7″ x 32″	29 lbs.	1
SSCT29	29″ long	30″ x 5.5″ x 9″	9 lbs.	6

Distribution Warehouses
Buffalo, New York
Atlanta, Georgia
Chicago, Illinois

BARCLAY HORTICULTURE MFG. LTD.
230 Canarctic Drive
Toronto/Downsview, Ontario
Canada M3J 2P4

CA3ONHWA05
C51C3
URBAN/MUNICIPAL
ERENCE
uced.
COUNCIL
JUN 19 1990, 19

June 14

CHAIRMAN'S ADVISORY COMMITTEE ON ENVIRONMENTAL ISSUES

AGENDA

DATE: Thursday, June 14, 1990

TIME: 8:30 o'clock a.m.

PLACE: Committee Room, 15th Floor
Regional Offices

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1. **GENERAL**

a) **Declaration of Interest** re: Municipal Conflict of Interest Act
b) **Minutes of Chairman's Advisory Committee on Environmental Issues Committee Meeting - May 10, 1990**

PRESENTATION: Presentation of Certificate of Appreciation to Bell Cellular (Hamilton Branch) for their service in emergency management.

2. **NEW BUSINESS**

2.1 **Review Terms of Reference**

a) Present Terms of Reference
b) Summary of meeting of Subcommittee, May 24, 1990
c) Draft of Revised Terms of Reference

2.2 **Educational Tours on Environmental Interest**

Councillor B. Hinkley to discuss this item.

2.3 Letter from Rashne N. Baetz, regarding the following subjects:

i) Energy conservation, lights left on in office towers. How can we change this?
ii) Closed and abandoned Landfill sites.

2.4 Letter from D. J. Robinson on behalf of Greensville against Serious Pollution regarding all operations at the Steetley Landfill Site

2.5 **Use of Styrofoam cups in City buildings.** Section 12 of the Finance and Administration Committee. Also, correspondence from Councillor T. Murray. For review and consideration.

2.6 **Resolution - County of Wellington, re: Use of Tire Derived Fuel.**
For comments and recommendations.

2.7 Hospital Incinerators
This issue was referred to this Committee from the Engineering Services Committee meeting on May 28, 1990.
For action.

3. FOR THE INFORMATION OF THE COMMITTEE

a) Report of the Planning and Development Department on Environmentally Sensitive Areas, policy, procedures and related projects.
b) Balloon Man of Canada - Regarding the release of balloons.
c) Tire fire offers Environmental Lesson.
d) Region Wrestling with By-Law to Protect Ozone.
e) Letter from Mr. J. Bradley, Minister, Ministry of the Environment, on steps the Ministry is taking with respect to CFC's.
f) New supply contract arrangements for recyclable glass now available from Consumer's Glass.
g) Letter from Mr. J. Sweeney, Minister, Ministry of Municipal Affairs, regarding Bruce Trail access, advising that our letter has been forwarded to the Minister of Transportation.
h) Correspondence from General Motors of Canada and what they are doing to protect the environment.
i) Scrap tire update.
j) Destruction of the ozone layer - correspondence from the Mayor of Winnipeg and related information.
k) Correspondence from APAE indicating their assistance in reducing the amount of waste that city employees produce.
l) Correspondence from Re-Met Processing Inc., regarding their Iron Oxide Recycling Project.
m) Cigarette Smoking.
n) Correspondence from Ontario Waste Management Corporation on Household Hazardous Waste: Issues and initiatives.
o) Correspondence from the Metropolitan Toronto Work Department on Organic Yard Waste Composting.

p) A report authorized by the Minister of the Environment, "A Framework for Discussion on the Environment".

q) Correspondence from Procter & Gamble, Inc., expressing their thanks for the opportunity to address the Committee, also attached is their policy on the following subjects:

    i) Solid Waste
    ii) Solid Waste Policy Overview
    iii) Disposable Diaper Initiatives
    iv) Industrial Solid Waste Reduction At P&G'S Belleville, Ontario Plant
    v) Biodegradability
    vi) Infant Skin Care Benefits Of Disposable Diapers
    vii) Relative Environmental Impact Of Diapering Systems
    viii) Cost Comparison Of Diapering Systems
    ix) Health Questions Concerning Diaper Disposal
    x) Producing Pulp For Paper Diapers

r) Correspondence from the Minister of the Environment, regarding the "Environmental Partners Fund".

s) Article on CFC's, entitled, "Blue Bottle" captures CFC's, reduces emissions to atmosphere.

t) Canadian Urban Institute Seminar and Workshop, June 2, 1990 - Cities and the Environment, Our Independent Future.

u) Correspondence from William Wrye, Minister, Ministry of Transportation, regarding The Bruce Trail Crossing of the Red Hill Creek Expressway.

ADJOURNMENT

1(b)

MINUTES OF THE CHAIRMAN'S ADVISORY COMMITTI ON ENVIRONMENTAL ISSUES

The Chairman's Advisory Committee on Environmental Issues met at 8:30 a.m. on Thursday, May 10, 1990 in the Committee Room, 15th Floor, Ellen Fairclough Building, Hamilton.

Present:	Chairman (Councillor) J. Prentice Councillors G. Copps, B. Hinkley Regional Chairman R.J. Whynott R. Baetz, P. Muldoon, B. McHattie, C. Katz, R. Steward
Also Present:	Councillor T. Cooke, J. Halliday, V. Terluk, P. Jensen, V. Abraham, M. Hornell, M. Carson S. McInnes (Regional Municipality of Halton)

1. GENERAL

a) **Declaration of Interest** re: Municipal Conflict of Interest Act (NONE)

b) **Minutes of the Chairman's Advisory Committee on Environmental Issues Committee Meeting - April 12, 1990**
(Copps/McHattie) CARRIED

Councillor J. Prentice advised the members that the day after Proctor & Gamble Ltd. had made their presentation to the Committee, that he saw a program on T.V. in which Proctor & Gamble were recycling disposable diapers.

Councillor Prentice advised that he had received a letter from William Wrye, Minister of Transportation indicating that the Ministry were going to provide financial support for the solution chosen by the Region for the Bruce Trail access across the proposed Red Hill Creek Expressway.

Councillor Hinkley distributed calenders prepared for the City of Hamilton promoting a cleaner environment.

c) **Delegation**

Ms. S. McInnes representing the Environmental Advisory Committee of the Regional Municipality of Halton briefed the Committee on how their Committee operated and what their responsibilities were.

A copy of the Terms of Reference are attached to the Minutes.

The Committee deals mainly with Planning Department items and all development proposals are reviewed by the Sub-Committee. Their budget is approximately $8 000, which is part of the Planning Department Budget.

Staff refers reports to the Environmental Action Committee after which they are sent to the Standing Committee. Councillor Prentice asked what the $8 000 budget covers. McInnes indicated that this money only covers extras such as mileage, meals, etc. for the members attending meetings. It appears that the Halton's Environmental Action Committee (EAC) does not review the variety of subjects that this Committee reviews.

Councillor Prentice thanked Ms. McInnes for taking the time to come to our meeting and explaining how the Halton EAC works.

2. TERMS OF REFERENCE - REVIEW

Mr. McHattie indicated that our present Committee composed of 9 members is not large enough to deal with all the issues brought before the Committee.

Chairman R.J. Whynott advised that the Chairman of this Committee must be a member of Regional council in order to have access to all information available on any subject.

It was suggested that eight Sub-Committees be set up.

Councillor Copps indicated that an anti-environmentalist may serve a need on the Committee to help debate both sides of an issue.

Chairman R.J. Whynott indicated that any private citizens serving on a Sub-Committee should be selected rather than an advertisement being placed in the newspaper.

Councillor Cooke indicated that this Committee may want to consider reporting to more than one Standing Committee because of the wide range of subjects discussed.

After much discussion it was moved by (Copps/Hinkley) that the following recommendations be reviewed and refined by a Sub-Committee comprised of Councillor Prentice, Ms. Baetz, and Messrs. McHattie and Muldoon for the purposes of detailing the areas of consensus and reporting back to the Committee at the June meeting.

a) There is a consensus in the need or acceptability of expanding the Committee by three members. The proposal was to expand the Committee with a representative from a Board of Education, the Conservation Authority and a citizen at large. There was no major disagreement over these categories, although it was recognized that there are three Boards of Education in the Region.

b) The appointment term of members of the Committee would be concurrent with the term of Regional Council.

c) The Chairman of the Committee would be a Regional Councillor. The Vice-Chairman would be elected from within the membership of the Committee.

d) Any member missing two or more meetings without an explanation would be replaced subject to a vote by the Committee.

e) Sub-Committees would be authorized. Each Sub-Committee could be composed by members outside of the Committee, but must be chaired by a member of the Committee.

f) There is need for a greater latitude in reporting by the Committee. It was suggested that the primary reporting body would be to the Engineering Services Committee. However, upon an as needed basis, the Environmental Committee could also report to other Standing Committees.

g) The Environmental Committee will not be transformed into a Standing Committee of the Region.

h) Regional Staff will continue to act as a resource to the Committee although their attendance will be based upon an as needed basis.

i) Action items left over from on meeting will remain on the agenda to subsequent meetings until fully dealt with.

j) That Department Heads, Regional Chairman, C.A.O. & Staff be requested to refer any subject manner on Environmental issues to this Committee for review and comment. **CARRIED**

3. FOR THE INFORMATION OF THE COMMITTEE

(Muldoon/Copps)

Correspondence from John Sweeney, Minister of Municipal Affairs re Bruce Trail access to the Red Hill Creek Valley from the Red Hill Creek Expressway.

CARRIED

4. On Motion (Katz/Muldoon) the meeting **ADJOURNED** at 11:15 a.m. **CARRIED**

Chairman

Secretary

2.1(a)

CHAIRMAN'S ADVISORY COMMITTEE
ON ENVIRONMENTAL ISSUES

TERMS OF REFERENCE

The Advisory Committee has the mandate to enquire into and to report, through the Engineering Services Committee, on matters relating to:

1. Solid Waste

   a) Policies and procedures for the effective management of solid waste

   b) New technologies, policies and ventures, and strategic distribution of the waste stream for:

      i) waste reduction
      ii) Glanbrook Landfill Site and Transfer Stations
      iii) S.W.A.R.U. energy from waste facility

   c) Recycling opportunities

   d) Planning and development of a process for the disposal contaminated materials

2. Hamilton Harbour Remedial Action Plan

   a) Review and comment on recommendations related to the rehabilitation of the Hamilton Harbour

   b) To act as the Region's liaison with the Hamilton Harbour Remedial Action Plan Stakeholders Group

3. Municipal Industrial Strategy for Abatement (MISA)

   Monitor, review and report on matters relating to Provincial legislation governing MISA.

4. Natural Areas

   Assist, review and comment on environmental matters relating to Natural Areas.

5. Public Education/Information

   To provide a forum for members of the public to become aware of and share in matters relating to the environment.

Schedule I

Proposed Environmental Committee

Title "Chairman's Advisory Committee on Environmental Issues"

Reports To Engineering Services Committee

Duration To be reviewed after each Term of Council

Composition 10 Members as follows:

4 Regional Councillors
Vice-Chairman, Engineering Services Committee -
- Councillor John Prentice

3 to be appointed by Council -
- Councillor Geraldine Copps
- Councillor Brian Hinkley
- Councillor Henry Merling

3 Environmentalists - Paul Muldoon
Hamilton Environmental Action Team (H.E.A.T.)

- Rashna Baetz
Conserver Society of Hamilton District

- John Struger
Hamilton Naturalist Club

1 Business Representative - Cuppy Katz
Cuppy Katz Enterprises Inc.

1 Academic Representative - Prof. Keith Murphy
Department of Civil Engineering
McMaster University

1 Labour Representative - Bill Pedder
International Union of Operating Engineers

Schedule I

Chair	Vice-Chairman of the Engineering Services Committee
Vice-Chair	Citizen Member to be appointed at first meeting
Special Advisors	One representative from the Ministry of Environment Commissioner of Engineering or designate(s)
Support Staff	To be provided by the Engineering Department

2.1(b)

Summary of May 24,1990 meeting between John Pren McHattie and Rashne Baetz regarding details surround structuring of the CACEI

At the last CACEI meeting the committee discussed a document brought forth by Brian McHattie, Rashne Baetz and Paul Muldoon. We agreed on a number of points and and left some open to further discussion. The following is a summary of that discussion as well as the above noted May 24 meeting.

Membership:

- agreed that membership expand to 12 from current 9 members
- Hamilton Region Conservation Authority - Ken Daikin or Bruce Duncan. Hamilton Board of Education - to agree with other boards on representative. Citizen - Bob Korol -McMaster University?
- membership to be for a three year term coinciding with term of council and members to stand re-appointment at that time
- Chairperson of committee to be vice-chairperson of Engineering services committee at least until potential reforming of that committee (**needs further discussion**)
- Vice-chairperson to be appointed by members of committee
- members missing two meetings without an explanation shall be recommended to council for replacement

Sub-committees:

Eight sub-committees to be as follows with suggested chairpeople (councillors need not be sub-committee chairpeople due to their time constraints):

Natural Areas: Brian McHattie/Conservation Authority rep.
Solid Waste: Rashne Baetz
Transportation: Bill Pedder
Education: Brd of Eds. rep.
Water Quality: Keith Murphy
Air Pollution: Cuppy Katz/Barry Thompson
Energy: Bob Korol?
Aims & Objectives - Env Vision: Paul Muldoon

Members of Sub-committee

- 3-4 sub-committee members/sub-committee to be sought by chairpeople and to be appointed by same -
- members to be chosen with technical expertise
- members to be chosen who are environmentalists with experience
- to meet monthly or more as required

Reporting:

- CACEI to report to Engineering services committee but to have the ability of making recommendations to any other standing committee as they see fit ie. Natural areas issues to Economic Development and Planning
- to be advisory committee **not** standing committee

Receiving:

- It seems other regional committees are now becoming aware of our committee, however whether issues come to us or not is still very arbitrary
- Items relating to environmental issues pertaining to, but not necessarily restricted to the eight subcommittee subjects should come to the CACEI first, should doing so not mean inaction on an emergency issue which requires immediate action - should this occur the issue should come to CACEI for review following action taken
- Chairperson of CACEI to scrutinize items on other committees' agendas for items of concern to this group

Meeting Structure:

- Committee members from the public cannot realistically be asked to attend morning meetings and councillors cannot attend evening meetings therefore it is suggested that a compromise be put forward of meetings occuring from 4:30PM - 7PM
- Staff representatives should be present at CACEI meetings where required by nature of items on agenda
- Any outstanding items should be listed at the bottom of each agenda until they are satisfactorily dealt with
- Previous agendas dating from the formation of the committee should be scrutinized for items that were not dealt with and these items should be resurrected and dealt with ie. diversion credit as suggested by Rashne Baetz.

Prepared by: Brian McHattie

2.1(e)

DRAFT

CHAIRMAN'S ADVISORY COMMITTEE
ON ENVIRONMENTAL ISSUES
TERMS OF REFERENCE

The Advisory Committee has the mandate to enquire into and to report, through the Engineering Services Committee, on matters relating to: Solid Waste, Hamilton Harbour Remedial Action Plan, Municipal Industrial Strategy For Abatement (MISA), Public Education/Information, through to Economic Development and Planning, on matters relating to: Natural Areas and to other Standing Committees if required.

1. Solid Waste

    a) Policies and procedures for the effective management of solid waste

    b) New technologies, policies and ventures, and strategic distribution of the waste stream for:

        i) waste reduction
        ii) Glanbrook Landfill Site and Transfer Stations
        iii) S.W.A.R.U. energy from waste facility

    c) Recycling opportunities

    d) Planning and development of a process for the disposal of contaminated materials

2. Hamilton Harbour Remedial Action Plan

    a) Review and comment on recommendations related to the rehabilitation of the Hamilton Harbour

    b) To act as the Region's liaison with the Hamilton Harbour Remedial Action Plan Stakeholders Group

3. Municipal Industrial Strategy for Abatement (MISA)

    Monitor, review and report on matters relating to Provincial legislation governing MISA

4. Public Education/Information

    To provide a forum for members of the public to become aware of and share in matters relating to the environment

Economic Development and Planning Committee

1. Natural Areas

Assist, review and comment on environmental matters relating to Natural Areas

Receiving: Reports/Information

Items relating to environmental issues pertaining to, but not necessarily restricted to the eight subcommittee subjects should come to the CACEI first (wherever possible) should doing so not mean inaction on an emergency issue which requires immediate action - should this occur the issue should come the CACEI for review following action taken.
Chairperson of CACEI to scrutinize items on other committees' agendas for items for referral to this committee.

Meeting Structure:

Committee members from the public cannot realistically be asked to attend morning meetings and councillors cannot attend evening meetings, therefore, it is suggested that a compromise be put forward of meetings occurring from 4:30 p.m. to 7:00 p.m..
Staff representatives should be present at CACEI meetings where required by nature of items on agenda.
Any outstanding items should be listed at the bottom of each agenda until they are satisfactorily completed.

Schedule 1

DRAFT

Proposed Environmental Committee

Title "Chairman's Advisory Committee on Environmental Issues"

Reports To Engineering Services Committee/Economic Development and Planning Committee/or other Committee if necessary

Duration 3-Year Term coinciding with term of council and members to stand for re-appointment at that time

Composition 13 Members as follows:

4 Regional Councillors
Vice-Chairman, Engineering Services Committee -
- Councillor John Prentice

3 to be appointed by Council
- Councillor Geraldine Copps
- Councillor Brian Hinkley
- Councillor Henry Merling

3 Environmentalists
- Paul Muldoon
  Hamilton Environmental Action Team (H.E.A.T.)
- Rashna Baetz
  Conserver Society of Hamilton District
- Brian McHattie
  Hamilton Naturalist Club

1 Business Representative
- Cuppy Katz
  Cuppy Katz Enterprises Inc.

1 Academic Representative
- Prof. Keith Murphy
  Department of Civil Engineering
  McMaster University

1 Labour Representative
- Bill Pedder
  International Union of Operating Engineers

- Hamilton Region Conservation Authority

- Hamilton Board of Education

- Citizen Member

Chair	Vice-Chairman of the Engineering Services Committee
Vice-Chair	Citizen Member to be appointed by members of the Committee at first meeting of the new term
Special Advisors	One representative from the Ministry of Environment Commissioner of Engineering or designate(s)
Support Staff	To be provided by the Engineering Department/Planning Department/other departments when required
Replacing Members	Members missing two meetings without satisfactory explanation should be recommended to Council for a replacement or asked if they wish to resign

Subcommittee To Be Formed As Follows With Suggested Chairpersons

Natural Areas:	Brian McHattie/Conservation Authority rep.
Solid Waste:	Rashne Baetz
Transportation:	Bill Pedder
Education:	Board of Education representative
Water Quality:	Keith Murphy
Air Pollution:	Cuppy Katz/Barry Thompson
Energy:	Bob Korol?
Aims & Objectives	
- Environmental Vision:	Paul Muldoon

Councillors need not be subcommittee chairman (due to their time constraints) but a representative of the CACEI must serve on each subcommittee

Members of Subcommittee

- 3-4 subcommittee members/subcommittee to be sought by chairpeople and to be appointed by same
- members to be chosen with technical expertise
- members to be chosen who are environmentalists with experience
- to meet as required

GREATER HAMI
REGIONAL MUNICIPALITY OF HAMILTON-W

2.2

January 22, 1990

MEMORANDUM

TO: Councillor Hinkley

FROM: J. Fardell

RE: Educational Tours on Environmental Interest

With the growing amount of concern and interest in the world with regard to the environment and its condition, the interest and concern has grown into the academic issues and solutions that the human race must consider.

When we last spoke, we discussed the advanced programs and initiatives that the Region of Hamilton-Wentworth has established with respect to environment issues and controls. With this, the Region has an opportunity to provide not only to our local academic institutes and industrial interests but possibly international interests, the possibility of educational tours and seminars to be provided by local environmental control initiatives and other related industries.

The educational tour segments of student travel is a market which has been around for a long time. The academic curriculum is the key to establishing the need and interest of the student. An example would be that of history where students and teachers would examine their subject with field trips and possible investigation of historic value. The environmental issue is one such tour or segment which could be tapped into within our Region.

The purpose for writing this memo to you as a member of the Environmental Advisory Committee is to possibly discuss the possibility of establishing a program through a source who is familiar in this field.

Once the program and studies have been established, our department can market this program. We feel this is a great opportunity for Greater Hamilton to show how advanced we are in this field and also to establish ourselves as a model to be studied.

JF/pae

ECONOMIC DEVELOPMENT DEPARTMENT
P.O. Box 910, Hamilton, Ontario, Canada L8N 3V9
1 James St. South, 3rd Floor, L8P 4R5
Tel: Business Development (416) 526-4447
Tourism and Convention Services (416) 526-4222
1-800-263-8590 Fax: (416) 526-4107

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Conserver Society
of Hamilton and District Inc.

March 26, 1990

Mr Jack Ramsay
Chairman's Advisory Committee
on Environmental Issues,
Dept. of Engineering, Hamilton

Please include the following items in the agenda for the next meeting of the Committee.

Thanks
Rashne N. Baetz

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1. A citizen of Hamilton has alerted me to the fact that many office tenants in downtown Hamilton leave their lights on well into the night. Considering Ontario Hydro is stressing energy conservation what is the explanation for this? what can we do to change this practice?

A registered charitable organization. 155 James Street South, Suite 601, Hamilton, Ontario L8P 3A4

Conserver Society
of Hamilton and District Inc.

-2/3.

2. CLOSED LANDFILLS

Spectator - March 15, 1990

Fears raised about dump[redacted]king legacy

By BETH MARLIN
The Spectator

'Who knows what's in there? As a citizen, I'm concerned.'

A WESTDALE environmentalist has unearthed new concerns about industrial waste buried at a former garbage dump bordering Chedoke Creek.

John Milton recently posted flyers throughout his west Hamilton neighborhood which raise concerns about potentially contaminated leachate flowing into the creek from the former dump site, which is now Kay Drage Park.

"Who knows what's in there?" Mr. Milton asked in a recent interview. "As a citizen of the area, I'm concerned."

Mr. Milton voiced his concerns at a recent meeting with the region's acting engineering commissioner Ted Gill and Hamilton Councillor Mary Kiss, prompting a public review of previously unreleased 1988 and 1989 test results.

The report will be presented to the region's engineering services committee by the end of April, said Mr. Gill, who has not yet reviewed the findings.

The park, which is bordered by King Street West, Highway 403 and Chedoke Creek, housed a 14-hectare (35-acre) landfill site from the early 1950s until 1974.

No records were kept of material dumped at the site, which was licensed to take 55 per cent household, 35 per cent commercial and 10 per cent industrial waste, Mr. Milton said.

For the past eight years, most of the land has been used as a park and the rest is now owned by the Roman Catholic Diocese of Hamilton.

Environmental concerns about the former dump, which has no system to collect an estimated 44 million litres (10 million gallons) of rain and groundwater percolating through the decomposing waste, have been raised before.

In 1987, allegations surfaced that hundreds of barrels of industrial waste oil had been dumped there during the 1960s after a city parks worker noticed a burning sensation when handling black sludge oozing from the ground. Youngsters playing soccer there also complained of burning feet and headaches.

At the time, council was told that regional tests turned up nothing to explain the complaints and no evidence that any hazardous waste had been buried there.

However, provincial documents obtained by Mr. Milton under the Freedom of Information Act reveal that one 1987 test did find heavy petroleum oils — possibly chlorinated rolling oils and petroleum tar — at the site.

"Both oils would cause hand irritation," states the document.

Environment ministry official John Vogt said the region's 1987 leachate tests show no measurable change in the quality of water before and after Chedoke Creek flows past Kay Drage Park.

"The Chedoke Creek is in such poor condition (from combined sewer overflows) that any effect from the leachate is negligible in comparison," Mr. Vogt said.

He said it may become easier to measure the effect of any leachate from the site after a retaining basin is installed next year over the combined sewer overflow near Royal Avenue.

Ms Kiss questions why the 1988 and 1989 results were never presented to council.

"We have a right to know what the results indicated. I want to be sure it is clear of methane and chlorinated organics and PCBs."

Ms Kiss said she will push regional council to install a collection system to prevent leachate from the former dump entering the creek.

The Roman Catholic Diocese of Hamilton, which acquired about one-quarter of the site from the city, is also interested in the test results, said administrator Jim Sherlock.

A registered charitable organization. 155 James Street South, Suite 601, Hamilton, Ontario L8P 3A4

Conserver Society
of Hamilton and District Inc.

2. CLOSED LANDFILLS / ABANDONED LANDFILLS...

The attached article "Fears raised about dump's leaking legacy" raises the issue of what the Region is doing with respect to closed and abandoned landfill sites in the Region.

① Have closed/abandoned landfill sites been identified and catalogued?

② What is being done to evaluate the environmental impact of these sites? - especially in terms of leachate sampling and analysis [Leachate is the contaminated liquid resulting from water percolating through the waste].

RECEI

2.4

GASP
(Greensville Against Serious Pollution)
c/o 659 Harvest Road
Greensville, Ontario, L9H 5K5
March 20 1990

Regional Municipality of
Hamilton-Wentworth
71 Main Street West
HAMILTON, Ontario, L8N 3T4

ATTENTION: Mr Reg Whynott, Regional Chairman

Dear Mr Whynott,

We have recently learned of the advisory committee on environmental issues which was established under your direction. Have the environmental issues of great concern to our community been discussed by this committee? These concerns are air pollution resulting from incineration of industrial waste materials proposed by Steetley Quarry Products Inc. and groundwater contamination resulting from both present and future landfilling by this same company.

Our first major concern is the proposal by Steetley to incinerate various waste materials (tires, industrial solvents, and shredder waste) in their lime kilns. Have the committee studied air quality in the Hamilton-Wentworth region? Has the committee assessed the impact of any additional air pollution resulting from industrial expansion, and especially has the committee studied incineratiion as a method of waste disposal?

The second major concern that we have is the contamination of groundwater resulting from the present Steetley Brow Landfill and the proposed 200 acre Landfill proposed for their South Quarry on highway #5. Both these sites are situated in fractured limestone which makes the worst possible containment system for such use. The natural drainage flow goes directly into Lake Ontario via Cootes Paradise thus affecting not only local wells but the prime water supply for the region of Hamilton-Wentworth.

Aside from the major impacts that these activities will have on our immediate community, they will also have a major effect on the region of Hamilton-Wentworth.. We as a community would be very grateful if the advisory committee would examine these issues with earnest and so help us assess their impacts. In so doing the region would be assisting in the protection of the two most vital elements of our environment- the quality of air and water.

Yours sincerely,

Dave Robinson

D. J. Robinson (on behalf of GASP)

c.c. Mr. E.M. Gill, P. Eng. Acting Commissioner of Engineering
Mr. Val Terluk, Manager of Solid Waste Operations

THE REGIONAL MUNICIPALITY
OF HAMILTON - WENTWORTH

Office of the Chairman

March 20, 1990

Mr. D.J. Robinson
GASP
c/o 659 Harvest Road
Greensville, Ontario
L9H 5K5

Dear Mr. Robinson:

Thank you for your letter of March 20, 1990 regarding the areas of involvement of our Task Force on Environmental Issues and the many areas of concern which you list for their attention.

First, let me say that you have indeed covered a very wide spectrum of issues and I can't commit that the group will be actively involved in all of them but I am aware that they are certainly extremely busy. I should also point out that they are a dedicated group of volunteers who also have other pursuits of importance so they do not spend all of their time in this particular committee role.

On the application by Steetley I'm hopeful that you are aware that the Region is very actively monitoring this situation and will be expressing our opposition to certain aspects of their proposal. In addition, we are also providing support funding for the Town of Flamborough for their submission.

I am taking the liberty of forwarding your letter to Regional Councillor John Prentice who has accepted the responsibility to serve as Chairman of the Task Force on Environmental Issues and I'm sure he'll discuss your comments with the group.

Thank you for writing and expressing your concerns.

Yours very truly,

R.J. (Reg) Whynott
Regional Chairman

P.O. Box 910, Hamilton, Ontario L8N 3V9
119 King Street West, 15th Floor
Tel: (416) 546-4200 Fax: (416) 546-2340

2.5

Corporation of the City of Hami

Memorandum

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TO: Mr. R. C. Prowse
Regional Clerk

YOUR FILE:

FROM: Mr. K. E. Avery
City Clerk

OUR FILE:
PHONE: 546-4587

SUBJECT: USE OF STYROFOAM CUPS IN CITY BUILDINGS

DATE: 1990 May 15

Subjoined for your information and appropriate action is a copy of Section 12 of the FIFTEENTH Report of the Finance and Administration Committee which was adopted by City Council at its meeting held 1990 May 8 and is self-explanatory.

Would you please arrange to present this matter to the Advisory Committee on Environmental Issues for review.

K. E. Avery,

c.c. Alderman B. Hinkley, Chairman, Keep Hamilton Clean Committee
Mr. D. Heintz, Secretary, Keep Hamilton Clean Committee
Mr. J. Thompson, Secretary, Finance and Administration Committee

12. That ceramic cups be used in City Hall for all City and Regional Council and Committee meetings and that the Region's Advisory Committee on Environmental Issues be requested to investigate the banning of styrofoam cups in City facilities.

RECEIVED
MAY 18 1990
REGIONAL CLERK'S OFFICE

APR 3 1990

CITY COUNCIL
HAMILTON, CANADA

Alderman Tom Murray
Chairman – Parks & Recreation Committee
Chairman - Copps Coliseum Committee
Police Commissioner

71 MAIN STREET WEST L8N 3T4 • (416) 546-2730 • RES. (416) 387-9243 – WARD 8

3 April 1990

Alderman Brian Hinkley, Chairman
Keep Hamilton Clean Committee

Dear Brian:

I have received a telephone call from a concerned constituent regarding the use of styrofoam cups by the Region's Health Department, on Upper Wentworth Street.

It seems that although we are promoting environment-friendly products for use by the general public, we ourselves are not abiding by this practice.

I would appreciate if you would address this concern and advise me on what action you may be taking.

Thank you kindly in advance for your assistance in this regard. I look forward to hearing from you.

Yours very truly,

Tom Murray,
Alderman, Ward 8

/ck

cc: Mrs. Cathy Malcolmson
88 Rice Avenue
Hamilton, Ontario
L9C 5V9

2.6

Corporation of the City of Ham

Memorandum

TO:	Mr. R. C. Prowse Regional Clerk	YOUR FILE:	
FROM:	Mr. John Thompson, Secretary Finance & Administration Committee	OUR FILE: PHONE:	 546-2747
SUBJECT:	RESOLUTION - COUNTY OF WELLINGTON RE: USE OF TIRE DERIVED FUEL	DATE:	1990 May 15

Attached is a copy of a resolution and supporting documents from the County of Wellington supporting the request of the Township of Puslinch regarding the use of tire derived fuel by St. Marys Cement Co. which has been forwarded to the City of Hamilton for endorsation.

This resolution was presented to City Council at its meeting on 1990 April 24 and referred to the Finance and Administration Committee.

At its meeting held 1990 May 3, the Finance and Administration Committee directed that the resolution be referred to the Transport and Environment Committee and the Region's Advisory Committee on Environmental Issues for comment and recommendation in order to assist the Finance and Administration Committee in responding to the request from the County of Wellington for endorsement.

Would you please ensure that this matter appears on the appropriate agenda.

John Thompson

att.

RECEIVED
MAY 16 1990
REGIONAL CLERKS OFFICE

COUNTY (

OFFICE OF THE COUNTY CLERK
JAMES C. ANDREWS, CLERK CO-ORDINATOR
TEL: (519) 837-2600
FAX: (519) 837-1909

2.

RECEIVED
APR 9 1990
CITY CLERKS

April 3, 1990

File #
113.290

TO: Counties and Regions and Local Municipalities
with population over 50,000

Attention Municipal Clerk

Dear Sir/Madam:

At its Session of Wellington County Council held on March 29, 1990, the Township of Puslinch requested County Council's support regarding the use of tire derived fuel by St. Marys Cement Co.

In response to this request County Council passed the following resolution:

"That the Council of The Corporation of the County of Wellington, at the request of The Corporation of the Township of Puslinch, supports St. Marys Cement Co. in their efforts to test burn tire derived fuel (TDF) made from scrap tires as a supplemental fuel in the firing of their cement kilns, and that this Resolution and supporting documents be forwarded to the Ministry of the Environment, local M.P.P.s, A.M.O. and all Counties and Regions and Local Municipalities with a population over 50,000. Carried"

I am enclosing herewith the background information and respectfully request that this be considered and hopefully supported by your Council and that the Ministry of Environment your local Members of Parliament and A.M.O. be advised of your support.

Thank you for your attention to this matter.

Yours sincerely,

James C. Andrews,
Clerk Co-ordinator.
JCA:d

c.c. Township of Puslinch

Council Action

ITEM No. 11-4
COUNCIL DATE MAR. 29/90

Township of Puslinch
OFFICE OF CLERK AND TREASURER

(MRS.) BRENDA BEATSON

R.R. 3 Guelph, Ontario N1H 6H
(County Rd. 34, Aberfoyle)
Telephone: (519) 763-1226

March 8, 1990

County of Wellington Administration Centre
74 Woolwich Street
Guelph, Ontario
N1H 3T9

Attention: Mr. James C. Andrews, CMC
Clerk Co-ordinator

Dear Mr. Andrews:

Re: St. Marys Cement Co. - Tire Derived Fuel Project

Waste management and recycling are under the jurisdication of the County of Wellington, and consequently Puslinch Township Council request that the enclosed material from St. Marys Cement Co. be brought to the attention of County Council members.

Township Council support St. Marys Cement Co. in their efforts to use tire derived fuel (TDF) made from scrap tires as a supplemental fuel in the firing of their cement kilns. It should be noted that at this point in time, the Cement Co. only wishes to test burn rubber tires for fuel.

Puslinch Council requests that the County consider passing a resolution in support of the foregoing for circulation to Ontario municipalities.

Thank you for your attention to this issue and we look forward to hearing from you.

Yours very truly,

Brenda Beatson

Brenda Beatson, A.M.C.T.
Clerk-Treasurer
Township of Puslinch

BB:rk
encl.

cc: R.E. Wechselberger, P. Eng.

TOWNSHIP OF PUSLINCH
RECEIVED
FEB 20 1990
Office of the Clerk Treasurer

January 8, 1990

The Honourable Jim Bradley
Minister, Ministry of the Environment
Government of Ontario
135 St. Clair Avenue West
Toronto, Ontario, M4V 1P5

Dear Mr. Bradley:

I noticed in the Globe and Mail (Jan.4, 1990, I believe) that MOE has rejected the application of St. Mary's Cement Company for a permit to test burn rubber tires for fuel. There is a great deal of evidence that this decision is a mistake.

As you know, waste tires are accumulating rapidly and represent a serious waste disposal problem. Cement plants can reduce fuel costs by 20% by burning tires and industrial wastes instead of coal for up to 25% of their fuel needs. Because of the 1450 C. temperatures required to make cement and the 7 second residence time for fuel in the burning zone, combustion is virtually total. Ash is incorporated into the clinker and ground into cement.

A cement plant is filled with powdered limestone which neutralizes acid gases. Electrostatic precipitators (and baghouses in some plants) further clean emissions. Tests in Europe and the U.S. indicate that cement plants are a safe method of tire disposal. At 13,000 BTUs per pound of tire, the mountains of tires which are accumulating represent an important source of fuel. Canadian cement plants may not be competitive with U.S. operations unless they are permitted to use this type of fuel since U.S. plants are now burning tires.

Piles of waste tires are breeding grounds for vermin and mosquitoes. Perhaps the most serious concern is that piles of tires may ignite spontaneously and are almost impossible to extinguish.

I hope you will reconsider the decision to deny St. Mary's Cement the opportunity to test the use of waste tires as fuel.

Sincerely,

Rodger Schwass, Professor
Faculty of Environmental
Studies, York University.

St Marys Cement Co.

St. Marys Cement Company
Engineering & Research Dept
410 Waverly Road, R. R. #2
Bowmanville, Ontario L1C 3K3
(416) 623-1722
FAX # (416) 623-5705

TOWNSHIP OF PUSLINCH
RECEIVED
FEB 20 1990
Office of the Clerk Treasurer

February 15, 1990

Councillor Whitcombe
Puslinch Township
R. R. #3
Guelph, Ontario
N1H 6H9

Dear Councillor Whitcombe:

We have heard of and would like to thank you for your support in our efforts to use tire derived fuel (TDF) made from scrap tires as a supplemental fuel in firing our cement kilns.

To help you to better support our project I enclose a copy of the comprehensive brief sent to the Minister of the Environment and others outlining the existing tire disposal problem, the danger of scrap tire stockpiles and in how a cement kiln could use TDF as an environmentally and economically viable way to dispose of the more than 70% of the scrap tires that cannot be recycled.

Enclosed is also a copy of a letter written by Prof. Schwass, Environmental Studies - York University, to Mr. Bradley endorsing our effort.

If you need any more information please call.

Yours truly,

R. E. Wechselberger, P. Eng.
Vice President
Cement Manufacturing

REW/lt

cc: Mayor Archie MacRobbie

A division of St. Marys Cement Corporation

St. Marys Cement Company

Tire Derived Fuel Project

Submission Distribution List

The Honourable James Bradley
Minister of the Environment
135 St. Clair Ave. W.
15th Floor
Toronto, Ontario
M4V 1P5

2. The Honourable Lyn McLeod
Minister of Energy
6th Floor, Room 6323
Whitney Block
99 Wellesley St. W.
Toronto, Ontario
M7A 1W3

3. Premier David Peterson
Room 281
Legislative Building
Queen's Park
Toronto, Ontario
M7A 1A2

Mr. Walter Elliot, M.P.P.
Room 320
Legislative Building
Queen's Park
Toronto, Ontario
M7A 1A2

5. Mr. Charlie Tatham, M.P.P.
Room 321
Legislative Building
Queen's Park
Toronto, Ontario
M7A 1A2

6. The Honourable Lucien Bouchard
Minister of the Environment
Terrasses de la Chaudiere
10 Wellington St.
29th Floor
Hull, Quebec
K1A 0H3

7. The Honourable Jake Epp
Minister of Energy, Mines & Resources
580 Booth St.
21st Floor
Ottawa, Ontario
K1A 0E4

8. Ms. Sheila Copps, M.P.
Room 369, West Block
House of Commons
Ottawa, Ontario
K1A 0A6

9. The Rubber Association of Canada
10 Four Seasons Place
Etobicoke, Ontario
M9B 6G2
Att: Mr. David H. Morgan

10. Canadian Portland Cement Association
365 Bloor St. E.
Suite 1900
Toronto, Ontario
M4L 3L4
Att: Mr. Eric G. Fines, President

11. Hugh Edighoffer, M.P.P.
Room 180
Legislative Building
Queen's Park
Toronto, Ontario
M7A 1A2

12. The Honourable Robert Nixon, M.P.P.
Frost Building South
7th Floor
Queen's Park
Toronto, Ontario
N7A 1Y7

13. The Honourable Shirley Collins, M.P.P.
700 Bay St.
3rd Floor
Toronto, Ontario
M5G 1M6

14. The Honourable Chris Ward, M.P.P.
23 Main St.
Dundas, Ontario
L9H 2P7

PAL-TECH ENGINEERING INC.

47 Elmhurst Drive, Hamilton, Ontario L8T 1C5 • (416) 333-6525 • (416) 383-1728

ST. MARYS CEMENT COMPANY

TIRE DERIVED FUEL PROJECT

PRESENTATION BRIEF

RECEIVED
NOV 28 1989
ST. MARYS CEMENT
ENGINEERING & RESEARCH
DEPARTMENT

November 17, 1989

Prepared By: Romeo F. Palombella
P. Eng.

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ST. MARYS CEMENT COMPANY

TIRE DERIVED FUEL PROJECT PRESENTATION BRIEF

1. Executive Summary

St. Marys Cement Company is an Ontario based resource company that produces cement and numerous other products for the building trade. The production of these materials is very energy intensive and the company has a continuing program to modernize its plants, explore other means of improving the operations of its cement kilns, and reduce fossil fuel usage with appropriate alternate fuels.

St. Marys Cement is actively investigating the use of processed waste tire fuel as a potentially viable and on-going option for application in its cement kilns. The company has previously conducted a short test to evaluate the handling and feeding characteristics of shredded tire chips. The current project would document and analyze factors related to production, quality control, fuel feed, and emissions, over a 7 to 10 day period using tire derived fuel. This processed material would act as an economical fuel supplement to replace some of the plant's imports of coal. Other cement companies around the world are experiencing success and operating economies with tire derived fuel usage.

The St. Marys Cement Company is well aware of the growing waste disposal crisis faced by Ontario and the rest of Canada. Adding impetus to the proposed tire derived fuel project are the recent approaches by several waste management firms, waste processors, and municipalities which have contacted St. Marys Cement for assistance in this regard.

There is currently a huge oversupply of surplus unmarketable tires in illegal dump storage. The growing annual Canadian surplus has been estimated by The Rubber Association of Canada Scrap Tire Task Force to be equal to two thirds of the 26 million passenger tire equivalents generated each year.

As a responsible strategy, most solid waste should be recycled, reused, reduced or recovered. Since tire-derived fuel consists of about 65% volatile materials, its use as fuel is an appropriate and necessary interim step to recover energy from what is currently a major solid waste problem. Although significant efforts are underway by the private sector to process the tires to crumb rubber, these efforts are hampered by the lack of product markets, funding constraints and technical difficulties.

If tire shredder operators and crumb rubber producers could deliver a portion of their otherwise unmarketable production and residue to large energy consumers, this option would improve their operations, assist with economies of scale, quality control, and reduce their waste disposal costs. This complementary benefit of energy usage for tire material will enhance the efforts directed towards Ontario's goals of the 4 R's program.

The results from St. Marys' proposed trial burn for tire derived fuel will provide experience pertaining to environmental control, cement quality, and the local plant changes required for an on-going tire fuel supplement program, so that a corporate decision can be made to ascertain if it is viable to proceed on a full-scale basis.

2. Introduction

St. Marys Cement Company is an Ontario based resource company established in 1912. Over the years the company expanded and built a second cement facility at Bowmanville, Ontario and acquired several operations in the United States for added production and marketing of its many products. St. Marys now has hundreds of employees and is conducting a significant expansion and modernization of the Bowmanville cement plant.

The cement industry is aware of environmental issues and can participate in optimizing the use of resources and minimizing society's wastes. By utilizing suitable wastes as fuel substitutes, the cement industry can consume them in high temperature kilns and absorb the by-products into its cement materials as useful components.

This is a form of energy conservation that preserves higher quality fossil fuels for residential and commercial consumers who do not have the cement industry's flexibility.

St. Marys has been aware of the mounting problem of solid waste disposal in southern Ontario. This has reached near crisis proportions and certain wastes such as tires have been designated as materials that are restricted from landfill disposal in certain areas. It is only a matter of time before additional waste materials are dealt with in this fashion, and there is speculation in the Toronto area that industrial solid wastes will not be accepted at all if new dump sites are not approved soon.

St. Marys Cement proposes to conduct a short test demonstration in handling tire derived fuel at the St. Marys, Ontario plant, using some of the tire surplus as fuel for its kilns. During the test, emissions and operating conditions will be monitored and recorded. Based on the success of these results, St. Marys Cement may want to proceed to utilize tire derived fuel as a regular fuel additive to supplement imported coal for its kiln burning needs.

3. Background

Tires are a potential resource generated world-wide, and which Ontario citizens discard as waste at the rate of one per year for each resident. Tires are also manufactured in Ontario's four tire plants, and are used on the many new vehicles that our automobile industry produces for Canadian use and export around the world.

Tire Business, a rubber industry journal, recently estimated that there may be as many as 6 billion tires in tire dumps around North America. This has been continually increasing because of the inability to find alternate uses for scrap tires. These quantities are generated in highly populated areas like southern Ontario; since other jurisdictions also have surpluses, the tires tend to be dumped at locations that offer the cheapest overall disposal cost.

Landfill sites throughout North America have been considering disallowing the dumping of whole tires, and many will not allow shredded tires.

The processing of tires by shredding reduces the space required at landfills, but this oil rich commodity has other uses, such as energy, and it should not be buried. The landfills, after all, are quickly filling and the tipping fees for regular solid waste have risen about 500% in only a few years, to about $85 per tonne in the Toronto area. Many landfills still accepting tires have added higher disincentive fees for their disposal.

Independent tire dumps have been established over the years, and although there have been considerable efforts by "tire jockeys" to export the reusable tires to developing countries, make tires available for retreading in Ontario, and sell them to American casing dealers, a backlog of tens of millions of tires has developed in rural Ontario storage areas, and stockpiles are growing.

These tire dumps in certain cases become breeding areas for mosquitoes and rodents which can transmit diseases affecting humans. The tire piles are also a concern to fire departments as they can be ignited by vandals and are very difficult to extinguish. The oils in the tires are released in these unplanned tire yard fires, causing serious damage to the soils, ground water, and the air through uncontrolled combusion.

Proper shredding of the tires to a clean edged tire chip can result in a material that is much safer and easier to store or transport, as well as useful for further processing or controlled combustion such as in a cement kiln. There is a pressing need for dependable outlets for the tire material present in tire dumps, which accumulates in growing quantities every year.

Tire recyclers have tried to utilize as much material as economically possible, and perhaps more. Technitread, a passenger tire retreader in Brantford, declared backruptcy this year, and Retico Rubber Inc., of Ayr, a pioneer in Ontario cryogenic tire crumb processing is also in receivership. These companies and others have been unsuccessful so far in achieving commercial success for tire recycling in Ontario.

The cement industry, however, has been quite successful in many countries around the world in utilizing tires as fuel. As many as 30 cement companies in West Germany are equipped to burn tires. Operations in the United States include California where they have very strict environmental air standards. Demonstrations in Canada have included a series of successful test burns by Canada Cement Lafarge at the St. Constant, Quebec cement plant.

Other locations, such as in Greece, have been importing tire chips from the United States and other sources. However, there are now concerns about the spread of mosquito borne diseases to other countries. The export of Ontario's old scrap tire stocks is thus an unlikely solution for the waste tire problem.

St. Marys, like several other cement companies, has been using imported coal as part of its fuel supply. Other fossil-based fuels used by the industry include petroleum coke, oil and natural gas. Rubber tires have proven to be an excellent fuel supplement for cement kilns. Their energy content is at least equal to coal or petroleum coke on a basis of energy per unit weight. In addition, rubber tires have a lower sulphur content than either of these two conventional fuels now used in Ontario. In a cement kiln, the proven reliable process, high temperatures, and long retention times, provide the most cost-effective, safe, and environmentally sound method of energy recovery available.

Because the cement industry is a very large user of energy in its processes, fuel expenses comprise up to 30% of the cost of the finished product. As other American and European manufacturers utilize wastes for fuel, they achieve cost reductions and gain advantages over Ontario based producers as free trade materializes.

On the other hand, reduced fuel costs achieved in Ontario plants using tire rubber supplements will protect Canadian domestic markets and encourage the growth of Canadian cement exports.

4. St. Marys Program

St. Marys Cement conducted a short test almost one year ago in order to evaluate the handling of various sizes of tire material, examine temperature stability in the kiln, and ascertain if a more extended test would require modifications to present plant systems.

In order to conduct a more informative trial during the proposed 7 to 10 day test interval, St. Marys has obtained a proposal from Independent Measurement and Technology Inc. (I.M.E.T.), a firm based in Markham, Ontario, to independently monitor and compare air emissions during the noted period. The resulting report on these tests will be available for review by government environmental officials for their own analyses. In effect, the comprehensive trial will evaluate all operational matters ranging from the delivery and handling of the processed tires, to stack emissions and cement product quality.

Tire Recycling Industry

Ontario is involved in the world effort to resolve the scrap tire recycling problem. Solutions here must be within the context of other activities that will invariably affect Ontario industries. It is a common goal, including St. Marys', that more of the world's processed resources must be recycled or reused.

The scrap tire industry has, over the years, made extensive efforts to reprocess their waste into other products through rubber reclaiming plants. The market for reclaimed rubber was lost as tire manufacturers changed to production of steel belted tires with more stringent quality controls. Subsequently, the reclaiming plants closed and the scrap tire industry lost its low grade outlet for this waste. In turn, this caused tire stock piles to grow in size and to proliferate in numbers.

Many of these hundreds of piles are unregulated, and the international movement of tires has increased as the free trade of the surplus entailed finding the least expensive tire dump. Tipping fee increases in one community simply transfer the problem to a less restrictive jurisdiction.

Most scrap tires have usually been sorted already to retrieve the reuseable and retreadable tires, as well as diversions for stamping and crumbing operations. This step which, ideally, can remove up to 70% or 80% of the tire stream, still generates a residue which may be appropriate as a long-term fuel supplement option. This would complement Ontario's 4 R's program by removing the unusable fraction for energy.

In other jurisdictions, such as Wisconsin, the governments are using tire tax revenue to fund clean up of unregulated tire dumps. These tires are shredded and utilized as fuel at several large energy consumers including pulp and paper installations where they are mixed with wood residues; at some small utilities the rubber fuel is burned with coal. The magnitude of the tire waste stream has dictated that fuel usage must be the foundation for resolving the tire surplus until other recycling and crumb rubber markets develop.

All the recycling operations eventually leave the tire as waste at some point. Second-hand tires finally wear out, as do retreaded tires. Firms stamping products out of tires must still recycle their unusable portions or dispose of them. The tire jockey or tire yard still has left-over tires that must be either stored or shredded and disposed of.

New companies and systems are attempting to separate end-stream scrap tires more economically into their components of rubber, metal and fabric. The crumb can be reused for certain rubber products, or used to extend some plastics. However, in 1987, according to Scrap Tire News of Suffield, Connecticut, there were only about 65 million pounds of crumb rubber sold in the U.S.A. compared to the available production capacity of about 100 to 144 million pounds.

There have been technical obstacles to more extensive usage. These include the fact that rubber in the tires has been vulcanized in the curing process so that when it is taken apart it is very difficult to successfully bond the crumb rubber back together or to most other materials.

This concern about bonding is one of the reasons why today's new tires do not contain any recycled tire material. Other cerns relate to the stringent specifications for radial tires, and product liability. The increased quality of tires has allowed tread life for passenger tires to triple during the last 20 to 30 years, thereby minimizing the number of tires requiring disposal.

6. Tire Surplus

There is currently one tire equivalent generated each year for each individual in Ontario. This has been occurring for many years, and the result is widespread rural collections ranging from the farmer's "back 40" to the larger piles throughout the province. For the most part, these tire piles are left over after the reusable tires have been sorted and marketed.

This glut of waste tires is still increasing according to the May 1989 report of the Rubber Association of Canada Task Force. They found that less than one third of the annual scrap tire stream was expected to be reused or recycled. This leaves an annual surplus that they recommend may be processed as tire derived fuel.

More readily available fuel applications would encourage the involvement of rubber users to try to utilize tire material. There is concern that, without an established outlet for wastes from recycled tires, the costs or inability to dispose of residues will be prohibitive to the rubber recycling industry. However, the existence of a number of outlets to burn scrap tire material would help enhance the province's 4 R's program, especially when the rubber processors are trying to expand their recycling efforts.

As an example, there are currently no economies of scale available as incentives for tire shredders or tire crumb producers in Ontario. The ability to divert certain sizes or types of tire chips, or crumb rubber, would help allow the processor to optimize the particular tire processing system and accommodate seasonal demand patterns.

Eventually, the rubber industry will be successful in its product development and marketing efforts and may be able to price the scrap tire material at levels that will make burning uneconomical for the cement industry. However, that event is not in the foreseeable future, and use of the current surplus scrap tire material as fuel is a prudent measure that can help bolster tire recycling efforts in Ontario.

7. Government Initiatives

Ontario has in place, and is developing, programs to encourage recycling. This is similar to efforts being conducted in at least 15 U.S. states. The 4 R's program in Ontario is a progressive plan to better utilize some of the province's waste streams. The need for such a program is highlighted by the 3 months delay encountered for the Ministry of the Environment to review increasing numbers of applications for assistance.

With so many competing jurisdictions promoting recycling, the surplus of identifiable wastes such as newsprint, glass, plastics and tires will continue until the major processors become more involved in developing product applications and marketing strategies.

Ontario's $5 tire tax will generate about $35 million over the next year that can be directed towards recycling tires. However, with the tax proceeds flowing to general funds and no specific program or plan in place, improved recycling efforts are unlikely to be stimulated by the tire tax.

There is an economic value for tire derived fuel, but a large pulp and paper company or cement company needs to obtain it for free. This allows for the substantial capital cost of any storage, handling and environmental equipment necessary. As well, the extensive time, expense, and effort required for the private sector to satisfy the government's various regulations must be considered.

Provincial efforts to divert the surplus must include an element of energy usage, or the viability of tire recycling operations will suffer, and the implementation of financially sound 4 R's programs will be impeded. The cement industry and he Task Force for Scrap Tire Disposal of the Rubber Association of Canada both agree that the use of the 65% oil based energy content in the tires as fuel is a valid Recovery component in Ontario's Reduce, Reuse, Recycle and Recovery waste strategy.

8. Summary

The responsible management of waste must focus first on the materials recovery and recycling of products which are present in the waste stream, and activities which may act as a disincentive to this philosophy should be reviewed thoroughly before implementation. The incineration of waste, conducted simply for purposes of expedient disposal, is a regressive strategy which is detrimental to the environment and alternative programs.

However, the proposed St. Marys project constitutes a very responsible and progressive approach with respect to two important issues; the effective and useful management of a significant waste stream component, and the conservation of non-renewable fossil fuels.

The controlled use of processed waste tires as a substitute for fossil fuels in cement kilns can provide an effective and practical means of addressing the important issues of waste management and energy conservation.

3(a)

THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

Planning and Development Department
119 King Street West, 14th floor
Hamilton, Ontario
(416) 546-4186 Fax (416) 546-4364

P.O.
L8N 3V9

June 1, 1990

Refer to File No. 764.61
Attention of
Your file No.

MEMORANDUM

TO: **THE CHAIRMAN AND MEMBERS OF**
THE REGIONAL CHAIRMAN'S ADVISORY
COMMITTEE ON ENVIRONMENTAL ISSUES

SUBJECT: Environmentally Sensitive Areas, policy, procedures and related projects.

BACKGROUND:

There are thirty seven Environmentally Sensitive Areas (ESA) designated in the Hamilton-Wentworth Official Plan. The location of these areas is shown on attached Map No. 4 from the Regional Official Plan. These areas were identified in a comprehensive study prepared in 1976 by Ecologistics Consultants as being of regional or provincial significance. These areas are governed by policies contained in section 5.3 of the Official Plan.

The Regional Official Plan (ROP) contains policies requiring the preparation of an Environmental Impact Statement (E.I.S.), or a waiver from the requirement for an E.I.S., when a development proposal will affect an ESA. The Planning and Development Department has developed procedures to be used in the preparation of Environmental Impact Statements and waivers. A copy of the procedures and a process flow chart is attached to this memorandum.

The Regional Planning and Development Department is undertaking a comprehensive review of the Hamilton-Wentworth Official Plan. As such, several studies are being carried out in the area of environmental policy, that will serve as inputs to the O.P. review process. A brief description of each of these studies follows:

1. Environmentally Sensitive Areas - Development Sensitivity Study

Since approval of the Regional Official Plan, some ESA's have come under varying development pressures, either from within the areas, or on their borders. These pressures have led to a concern regarding maintenance of the integrity of these ESA's. Application of Environmental Impact Statement policies and procedures has tended to regard situations on an isolated, case by case (or exception) basis which can lead to an incremental erosion of the ESA's.

This study will examine identified ESA's to determine their specific boundaries, the requirement for additional buffer areas, and sensitivity of each area to various forms of development with the intent being to maintain the physical, biological and historic features that make these areas environmentally sensitive and significant.

Associated with this examination will be an evaluation of the effectiveness of related ROP objectives, policies, and procedures that deal with the criteria to define, establish, delineate and protect ESA's; and assess the implication and potential impact of development proposals within and on the periphery of ESA's.

This study, to be prepared by consultants, should be completed by the end of 1990. It is expected that the Regional Economic Development and Planning Committee will approve the study terms of reference at its meeting on June 12, 1990.

2. Environmentally Sensitive Area Policy Review: Operational Review, and Environmental Review.

To facilitate the accomplishment of the ESA Development Sensitivity Study, the Regional Planning and Development Department has also commissioned two internal studies for the purpose of ESA policy review: an Operational Review, and an Environmental Review.

The purpose of the Operational Review is to critically assess the actual implementation of regional policies applicable to development in or near ESA's. This involves evaluating the strengths and weaknesses of policies and procedures. It will also contribute to the recording and storage of information about ESA related development proposals. The study will make recommendations for improving the implementation of existing policy and for closing any identified policy gaps. Supporting this latter, a review and discussion of innovative policy options for environmental protection will be carried out.

The purpose of the Environmental Review is to identify existing and potential threats to the integrity of ESA's due to land use change or other human activity in order to assess the cumulative effects of development. One of the products of this study will be environmental summaries of developments, which will be used in combination with field study results to generate overall ESA environmental assessments.

This study will be co-ordinated with the Development Sensitivity Study. Both aspects of this study are expected to be complete by the end of the summer of 1990.

3. Co-operation with the Hamilton Naturalists' Club in the preparation of a Biological Inventory

The Hamilton Naturalist's Club is undertaking a biological inventory of various sensitive areas in Hamilton-Wentworth in co-operation with the Regional Planning Department. The results of the biological inventory will allow Regional re-assessment of existing ESA's and possible identification of new ESA's.

CONCLUSION

As can be seen from the above information a number of projects are, or will be, underway to examine the basis of identifying and protecting environmentally sensitive areas. The Advisory Committee will likely be interested in the development and outcome of these studies, and on this basis Planning Department staff will keep the Advisory Committee apprised.

RECOMMENDATION

That the Regional Chairman's Advisory Committee on Environmental Issues receive this report as information.

Respectfully submitted

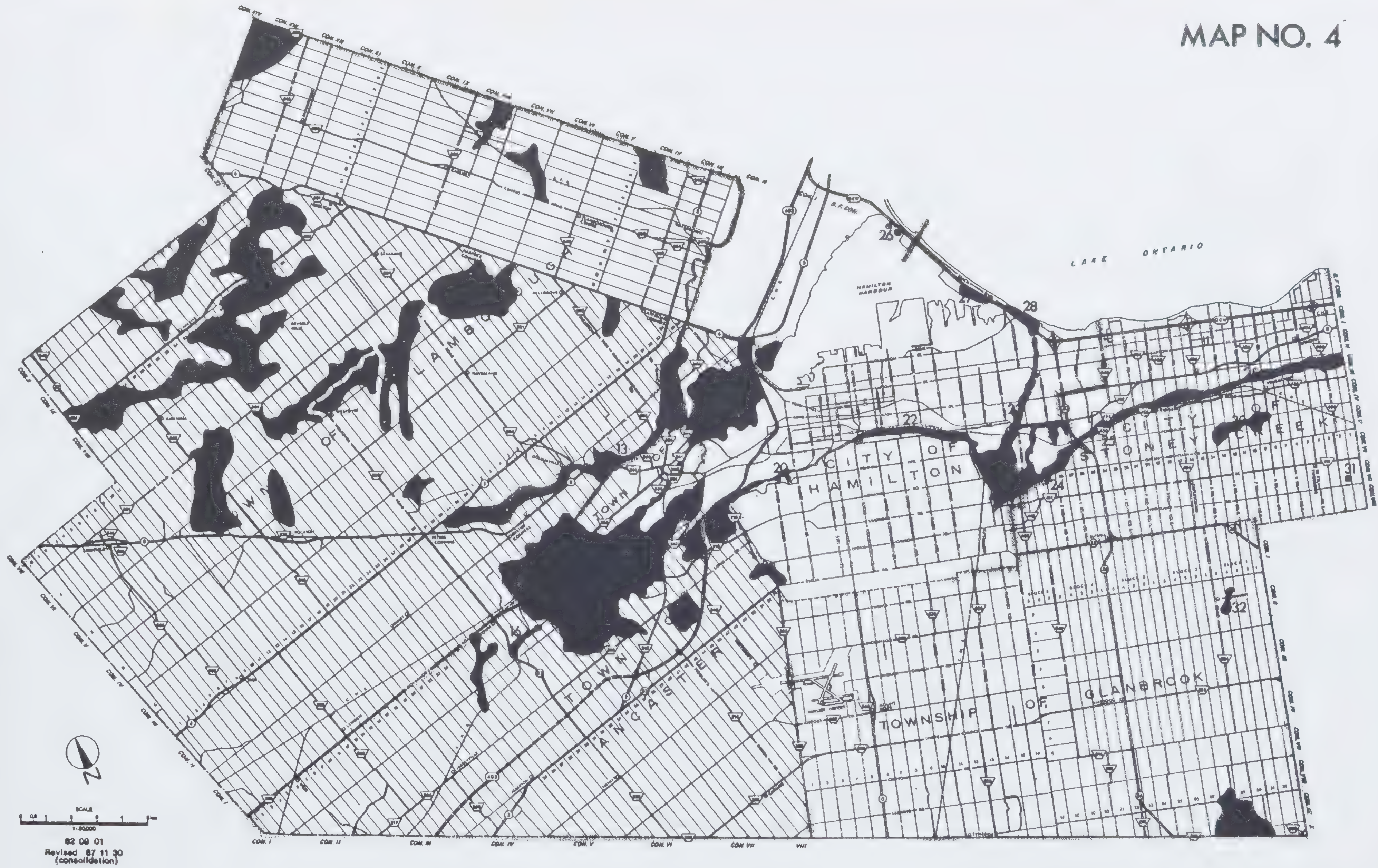
J.D. Thoms, M.C.I.P.
Commissioner
Planning and Development

VJ Abraham

V. J. Abraham, M.C.I.P.
Director
Regional Planning Branch

MH:fd

MAP NO. 4


LAKE ONTARIO
HAMILTON HARBOUR
CITY OF HAMILTON
CITY OF STONEY CREEK
TOWNSHIP OF GLANBROOK
TOWN OF ANCASTER
TOWN OF DUNDAS
TOWNSHIP OF FLAMBOROUGH
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SCALE
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82 09 01
Revised 87 11 30
(consolidation)

LEGEND

ENVIRONMENTALLY SENSITIVE AREAS ▨

1 Beverly Swamp
2 Valens
3 Fletcher Creek Swamp Forest (Crieff Bogg)
4 Hyde Tract, Rockton Tract and Beverly Sparrow Field
5 Rockton Wetland
6 Westover Wetland
7 Westover Drumlin Field
8 Forestry and Wildlife Area
9 Haysland Forestry and Wildlife Area
10 Millgrove Woodlot
11 Donald Farm Wetland
12 Christie Conservation Area

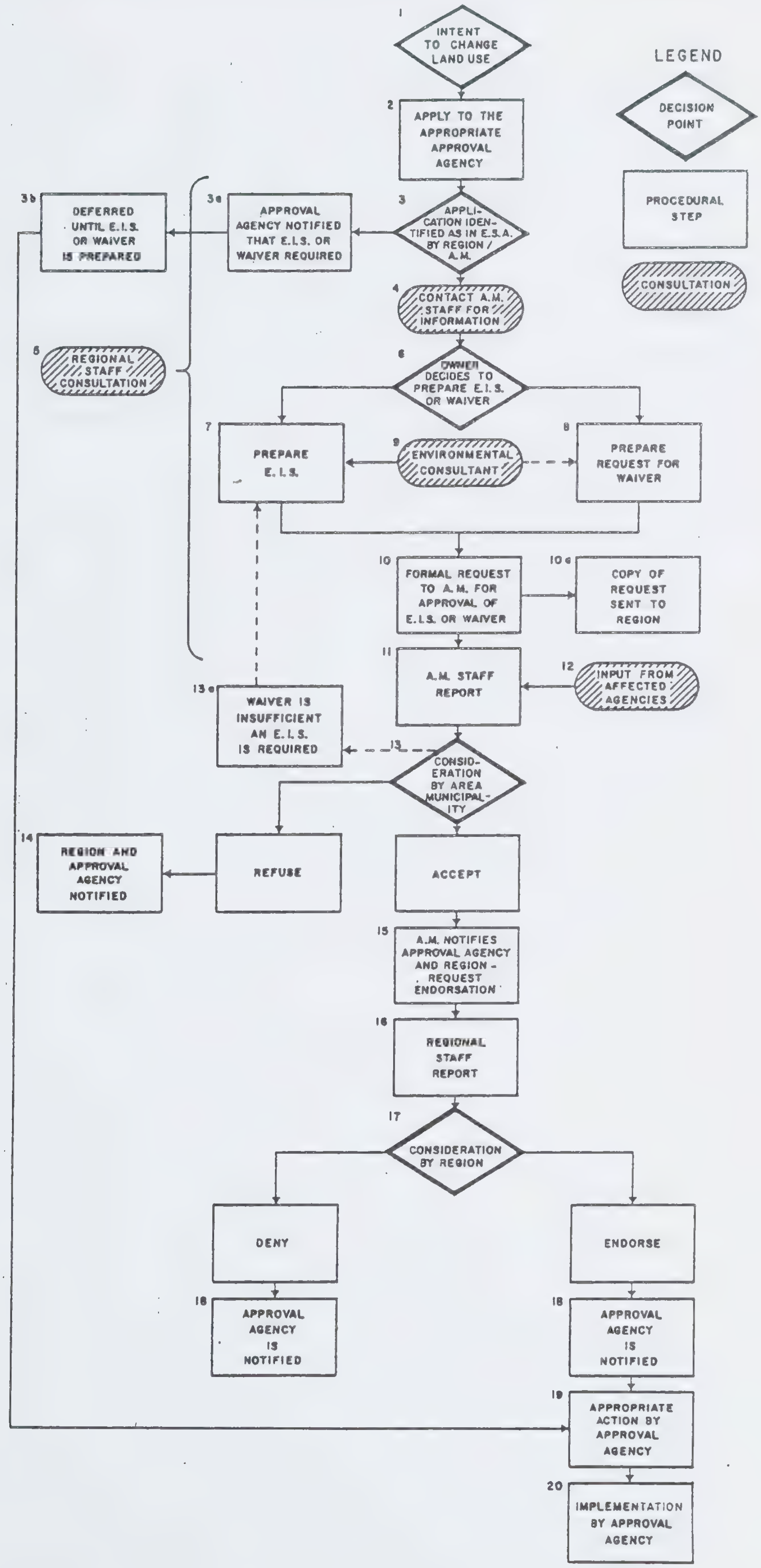
13 Spenser Gorge (Webster's and Tew's Falls)
14 Borer's Falls - Rock Chapel
15 Royal Botanical Gardens - Cootes Paradise
16 Summit Muskeg Preserve
17 Copetown Woods
18 Dundas Valley
19 Tiffany Falls
20 Hamilton Mountain (Radial Line)
21 Ancaster Creek Headwater
22 Hamilton Niagara Esc[illegible]ent
23 Red Hill Creek - King[illegible]
24 Felker's Falls and Nia[illegible]scarpment
25 Niagara Escarpment - [illegible]'s Punch Bowl East

26 Hydro Islands
27 Toll Gate Ponds
28 Red Hill Creek Marsh - Van Wagner's Marsh
29 Lake Medad
30 Saltfleet Woodlot
31 Tweedside Forest
32 Woodburn Floodplain
33 Sinclairville Lowland Forest
34 Hamilton Golf and Country Club
35 Mountsberg
36 Bronte Creek Ravine
37 Carlisle Swamp

ENVIRONMENTALLY SENSITIVE AREAS

Planning [illegible]lopment Department
H[illegible]n - Wentworth Region

ENVIRONMENTAL IMPACT STATEMENT PROCEDURES


1
INTENT TO CHANGE LAND USE
LEGEND
DECISION POINT
PROCEDURAL STEP
CONSULTATION
2
APPLY TO THE APPROPRIATE APPROVAL AGENCY
3b
DEFERRED UNTIL E.I.S. OR WAIVER IS PREPARED
3a
APPROVAL AGENCY NOTIFIED THAT E.I.S. OR WAIVER REQUIRED
3
APPLICATION IDENTIFIED AS IN E.S.A. BY REGION / A.M.
4
CONTACT A.M. STAFF FOR INFORMATION
5
REGIONAL STAFF CONSULTATION
6
OWNER DECIDES TO PREPARE E.I.S. OR WAIVER
7
PREPARE E.I.S.
9
ENVIRONMENTAL CONSULTANT
8
PREPARE REQUEST FOR WAIVER
10
FORMAL REQUEST TO A.M. FOR APPROVAL OF E.I.S. OR WAIVER
10a
COPY OF REQUEST SENT TO REGION
11
A.M. STAFF REPORT
12
INPUT FROM AFFECTED AGENCIES
13a
WAIVER IS INSUFFICIENT AN E.I.S. IS REQUIRED
13
CONSIDERATION BY AREA MUNICIPALITY
14
REGION AND APPROVAL AGENCY NOTIFIED
REFUSE
ACCEPT
15
A.M. NOTIFIES APPROVAL AGENCY AND REGION - REQUEST ENDORSATION
16
REGIONAL STAFF REPORT
17
CONSIDERATION BY REGION
DENY
ENDORSE
18
APPROVAL AGENCY IS NOTIFIED
18
APPROVAL AGENCY IS NOTIFIED
19
APPROPRIATE ACTION BY APPROVAL AGENCY
20
IMPLEMENTATION BY APPROVAL AGENCY

WP0622
~~R.556.4~~
764.6

REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH
PLANNING AND DEVELOPMENT DEPARTMENT

ENVIRONMENTAL IMPACT STATEMENT (E. I.S.)

PROCEDURES

PROCESS STEPS		DESCRIPTION
1.	Change in land use	An owner of a property intends to intensify or change the legal land use of his property.
2.	Application	The owner applies to the appropriate agency for approval of change. These agencies include: o Niagara Escarpment Commission - development permits. o Area Municipality - rezoning - plan of subdivision - official plan amendment Region - official plan amendment o Ministry of Municipal Affairs and Housing - amendment to Parkway Belt West Plan
3.	Identified as in E.S.A.	The application is identified as being in an Environmental Sensitive Area by Regional or Area Municipal Staff through the circulation of the application by the appropriate approval agency.
	(a) notify approval agency	The appropriate approved agency is notified by Regional or Area Municipal Staff that the application requires an E.I.S.
	(b) defer application	The Agency defers consideration of the application until an E.I.S. or request for a waiver from the requirements of an E.I.S. has been completed.

4.	Area Municipal staff	The applicant contacts the appropriate Area Municipal staff for further information. Requirements for the preparation, content, and procedures for an E.I.S., or a request for a waiver from the requirements of an E.I.S. are provided.
5.	Regional staff	Regional staff will be available for information and comment to Area Municipal staff, the applicant, his consultant, and from the approval agency from process steps 3 to 11.
6.	Preparation of an E.I.S. or waiver	The applicant decides to prepare either an E.I.S. or a request for a waiver from the requirements of an E.I.S. An E.I.S. is required if the owner of a property within an E.S.A. changes or intensifies the legal use of his property (Sections 3.15(c) of the Hamilton-Wentworth Official Plan). However, if warranted, the applicant may request that the Area Municipality and Region waive the requirement to undertake an E.I.S. for his proposal (Section 15(d) of the Hamilton-Wentworth Official Plan). In the past, requests for waiver have been prepared and approved when the proposal is minor in nature (i.e., a single family unit, or a small structure) and clearly has no significant environmental impact; or there are no environmentally sensitive features on the site.
7.	Prepare E.I.S.	The applicant decides to prepare an E.I.S. The preparation of an E.I.S. consists of the following steps: o The applicant will hire an environmental consultant to undertake the E.I.S. o The E.I.S. must be prepared pursuant to the following requirements of the Hamilton-Wentworth Official Plan:

"5.3.10 That an Environmental Impact Statement referred to in the policies of the Plan shall contain:

(a) The environmental quality, uniqueness and character of the environmentally sensitive area in which the proposed undertaking will occur;

(b) A description of the purpose of the undertaking;

(c) A description of alternative methods of carrying out the undertaking;

(d) An evaluation of the advantages and disadvantages of the environment of the undertaking; and

(e) A description of and a statement of:

1. The environment that will be affected or that might reasonably be expected to be affected, directly or indirectly

2. The effects that will be caused or that might reasonably be expected to be caused to the environment, and,

3. The actions necessary or that may reasonably be expected to be necessary to prevent, change, mitigate or remedy the effects upon or the effects that might reasonably be expected upon the environment, by the undertaking.

5.3.11.That in the Environmental Impact Statement the term environment is limited to the natural environment and means:

(a) Air, land or water both surface and subsurface), and

(b) Plant and animal life, excluding man."

o A site inspection should occur.

o During the preparation of an E.I.S. contact with other agencies, for their comments, may be made by applicant. These agencies may include:

-Niagara Escarpment Agency;
-Conservation Authority;
-Ministry of Natural Resources; and,
-Regional Health Department.

o Area Municipal and Regional staff are available for information and comments throughout preparation of E.I.S.

8. Request for Waiver

The applicant decides to prepare a request for a waiver from the requirements of an E.I.S. A request for waiver must justify why an E.I.S. is not warranted (i.e., the property has been cleared and there is no longer any environmental features on the site) and should contain the following:

o description of the site;
o identification and evaluation of environmentally sensitive features;
o investigation of possible damage from the proposal on the environment;
o supportive information from the appropriate agencies (e.g. Conservation Authority); and,
o a summary to satisfy why E.I.S. is not needed.

		The preparation of a request for a waiver may consist of the following steps: o The applicant may hire an environmental consultant to undertake the waiver, if necessary. o Applicant/Consultant may contact other agencies for comment. o Area Municipal and Regional staff are available for information and comments throughout preparation of waiver.
9.	Environmental Consultant	The expertise of an environmental consultant is necessary in order to undertake an E.I.S. Environmental Consultants may also be needed to produce a request for a waiver. Generally, this occurs if the applicant does not have sufficient knowledge of the environment to fulfill the general requirement of a waiver, as described in process Step 8. A partial list of environmental consultants in this area is attached.
10.	Request for approval of E.I.S.	Once the E.I.S. or the request for waiver, has been completed, the applicant should submit a formal request for approval to the Area Municipality in which the proposal is located.
	(a) Copy of request	The applicant should send a copy of the request for approval to the Region in order to inform staff that the E.I.S. or waiver is being processed.
11.	Area Municipal Staff report	Area Municipal staff prepares report for planning committee recommending refusal or acceptance of the E.I.S. or waiver and identifying the appropriate actions which will be taken to implement environmental protection measures (eg. by-law provisions, site plan conditions, and plan of subdivision conditions).
12.	Input from Affected Agencies	Approval agencies with an interest in the proposal may be contacted for input and/or consultation with Area Municipal and Regional Staff, prior to the preparation of a staff report. Input and consultation may occur through meetings

		with representatives of interested agencies to review proposal and the recommendations of the E.I.S. or waiver. The nature and extent of this consultation and input will vary depending on each application.
13.	Area Municipal consideration	The E.I.S. or waiver will be considered by the Area Municipal Council for refusal or acceptance, based on the Committee recommendation.
	(a) waiver is insufficient	The Area Municipal Council may decide that the request for a waiver does not adequately deal with the impact of the proposal on the environment and the preparation of a full E.I.S. is required.
14.	Notify approval agency	The Area Municipality should notify the approval agency which has deferred or approved the application, of its decision and of any mitigating measures identified by the E.I.S. or waiver.
15.	Request of endorsation	The Area Municipality notifies the Region of its acceptance of the E.I.S. or waiver and requests Regional endorsation.
16.	Regional Staff report	Regional staff prepares report for the Regional Planning and Development Committee recommending refusal or endorsation of the E.I.S. or request for waiver.
17.	Regional consideration	The E.I.S. or waiver will be considered by Regional Council for denial or endorsement based on the Committee recommendation.
18.	Notify approval agency	The Region should notify the approval agency, which had deferred or approved the application, of its decision and of any mitigating measures identified by the E.I.S. or waiver.
19.	Action by Approval Agency	The preparation of an E.I.S. or waiver and associated actions by the Area Municpal and Regional council allows the approval agency to consider the application for approval or refusal.
20.	Implementation	Implementation of the recommended mitigating measures can be made as conditions of approval, or implemented by other appropriate agencies.

3(b)

BALLOONMAN OF CANADA

A Division of: Pioneer International Limited

HAMILTON
Head Office
333 Kenora Ave. N.
Hamilton, Ontario L8E 2W3
(416) 560-6534
FAX: (416) 560-9778

MONTREAL
Eastern Canada
Sales & Distribution
5591 Maricourt
St-Hubert, Québec J3Y 7M2
(514) 678-0497
FAX: (514) 678-2786

EDMONTON
Western Canada
Printing & Distribution
9603-41st. Ave. N.W.
Edmonton, Alberta T6E 5X7
(403) 463-7800
FAX: (403) 463-5711

March 6, 1990

City of Toronto
Executive Committee of the City Council

To All Committee Members:

A copy of your recent action against latex balloons has come to my attention. It seems that you have received a good deal of misinformation regarding balloon releases.

My own efforts to research the sources for most of the information has led me back to one of two original sources. Often times, information supplied from these has made its way through one or more exchanges and is then presented by another source as verified fact. For example, the producer of CBS News "Earth Quest" segment received "original" information from one source and "confirmed" the information from sources who were using the original source as their information source. This process has created a self-confirming circle of misinformation.

To the best of our extensive research, a latex balloon from a balloon release has never caused the death of any sealife. We have found an incident regarding a whale is often presented as such, but examination of the facts reveals that this is not correct. The necropsy of the whale found the remains of a mylar balloon amid several pounds of plastics trash. Mylar balloons are much more expensive than latex balloons, and are not used in balloon releases (they are; however, sometimes used by lobster fishermen to mark traps). Further, the balloon is often cited as cause of death in this example; but upon close cross-examination under oath it has been admitted that the accumulation of plastics was the cause of death, and no one item could be pinpointed as the precise cause of death.

Often times it is stated that latex balloons are not biodegradable. This is a total misrepresentation of fact. Latex balloons are fully biodegradable and photodegradable. We cannot state a precise time for the breakdown because -- as with any biodegradable substance -- degradation time will vary, depending upon precise atmospheric conditions. It is safe to say that under similar conditions a latex balloon would degrade faster than an oak leaf.

It is also often stated that, at the very least, latex balloons cause an unsightly "pollution" problem. This assertion is "proved" by "facts" like, "when you release that many balloons, they all have to come down." While this proposition is true, the assumed corollary -- that they all return to earth in one spot -- is absolutely not true. I travel extensively in my job, have walked many beaches, and have yet to find one case of a multitude of balloons littering the landscape. Further, I have never found anyone who, when questioned, can confirm a similar sight.

I honestly don't know why several people have decided to make the balloon release question their cause; maybe they are tired of fighting the large industries such as plastics and petrochemicals which are the true source of our oceans' plastics problem. Because the balloon distribution system is so entrepreneurial, the so-called environmentalists are fighting very small companies who most often don't have the time, energy, or resources to fight the battle.

I am an environmentalist and a responsible business person; I do not believe that any industry has the right to harm our environment. I also do not believe that companies have the right to produce products which they know are dangerous to the environment. This sentiment is endorsed by the rest of Pioneer's executive management as well.

I have enclosed some support materials for your reference. I urge you consider the facts and revise your action. I would be happy to discu the matter further.

Sincerely,

Bruce Fraser
National Sales Manager

BF/jp
Encl.

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Letters to the Editor:

Tire fire offers environmental lesson

The tire fire near Hagersville is a sad and unnecessary occurrence. The lack of preventive action clearly points to the failure of our elected officials and the bureaucracy to deal with environmental issues.

Unfortunately humans and politicians respond to catastrophes much more than they do to gradual change. Because depletion of the ozone shield by chlorofluorocarbons (CFCs) is a nebulous, hard-to-conceive process, taking place unseen, high in the stratosphere, politicians tend to give lip service only to the solution of the problem. It will, however, have effects on humanity and the planet thousands of times more damaging than this unnecessary tire fire.

Hundreds of pounds of refrigerants (CFCs) are being allowed to escape to the atmosphere by the refrigeration industry in Ontario each day. Yet, all levels of government refuse to regulate the sale and use of these lethal chemicals. The CFC manufacturers such as the Du Pont and Allied Chemicals and professional organizations such as the Heating, Refrigerating and Air Conditioning Institute and the Refrigeration Service Engineers Society are all passing the buck.

No effective programs are in place to stop needless release to the atmosphere of CFCs. Recovery, reclaim and safe disposal systems are not in use three years after the Montreal Protocol and 16 years after Sherwood Rowland and Mario Molina gave the world warning. The Montreal Protocol, which controls the amount of CFCs produced, is in effect creating an artificial shortage of CFCs. This has already led to major price increases, and the price of refrigerants will probably triple in the next two years. It does not regulate the sale or use of CFCs.

Several American states are moving to control the purchase and use of CFCs. Ohio will require the certification of all businesses and the training of all workers who handle CFCs by 1991. To be registered, proof of purchase of recovery equipment would be necessary along with compliance with other strict conditions.

We need similar legislation in Ontario and in Canada that will be strictly enforceable, at the very latest by Jan. 1, 1991. The political procrastination that allowed the Tyre King blaze must end in regard to the far more serious ozone depletion disaster that lies in our near future.

JIM TAPLAY
Grimsby

THE TORONTO STAR.
TUESDAY- MARCH 13.1990

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B2 THE SPECTATOR, SATURDAY, MARCH 10, 1990

Region wrestling with bylaw to protect ozone

By BETH MARLIN
The Spectator

IT MAY not be legally enforceable, but a regional committee has sent its lawyer back to the drawing board for a pollution control bylaw.

Members of the chairman's advisory committee on environmental issues yesterday rejected a legal opinion against passing a bylaw to control the disposal and servicing of chlorofluorocarbons, which are harmful to the ozone layer.

Legal services commissioner Ken Anderson explained the region had no more jurisdiction to encroach on recent provincial CFC legislation than it would to change the federal Criminal Code.

"It's not your area. You simply don't have the jurisdiction," Mr. Anderson told the committee.

However, Mr. Anderson later said his department, which is understaffed and overworked, would take another stab at the problem, possibly by beefing up the region's trades-licensing bylaws.

"We're just not happy with that recommendation that we not prepare a bylaw," committee chairman John Prentice told Mr. Anderson. "We can't pass laws that we can't enforce and we have no jurisdiction for, but if there is some sort of bylaw (possible); we want it in Hamilton-Wentworth."

Refrigeration tradesman Jim Taplay convinced the committee in November to push for a CFC bylaw similar to one passed almost a year ago by Toronto city council.

Yesterday, Mr. Taplay told the committee the province's legislation is inadequate and has taken too long to put in place.

"The province is doing absolutely nothing in the way of CFC regulations in refrigeration," said Mr. Taplay. "It is not a legal decision. It is a political decision as to whether the regional councillors have the political guts to do something."

CFCs are routinely released from air conditioners and refrigerators during disposal, repair and while malfunctioning, he said. CFCs rise to the stratosphere and destroy the ozone layer, which filters out harmful ultraviolet radiation.

The federal government has committed itself to eliminating CFC use within ten years.

According to Mr. Taplay, the region's year-old trades-licensing bylaw will encourage the irresponsible handling of CFCs by appliance repairmen because it does not require a five-year apprenticeship, as required under Ontario legislation.

Mr. Taplay said the region didn't worry about its legal jurisdiction when it "overrode the (Ontario) Apprenticeship Act in their trades-licensing bylaw."

Committee member Brian McHattie agreed.

"Everyday, refrigeration tradesmen are bringing appliances back to their shops and venting CFCs into the air," said Mr. McHattie. "Whether the province has passed some sort of a law or not, nothing's happening out there."

Ontario

Office of the Minister

Ministry of the Environment

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M4V 1P5
416/323-4359

April 02, 1990 01M2215

Mr. John Prentice, Chairman
Chairman's Administrative Committee on Environmental Issues
The Regional Municipality of Hamilton-Wentworth
Dept. of Engineering
71 Main Street West
Hamilton, Ontario
L8N 3T4

Dear Mr. Prentice,

Thank you for your letter dated January 15, 1990, regarding the activities in the refrigeration, air conditioning industry to reduce use and venting of CFCs. The Ontario Ministry of the Environment has been very active in this area since early in 1989.

My Ministry took the lead regulatory role when Bill 218 received Royal Assent on June 20, 1989. The Bill is now formally Part V-A of the Environmental Protection Act. As a result, products that employ CFCs as a propellant in aerosol sprays, or as a blowing agent in the manufacture of packaging foams are regulated. In both cases, the manufacture of those products was banned in Ontario on July 1, 1989.

In addition to Part V-A, a Regulation was passed by Cabinet on June 28, 1989, which identified the requirements after July 1, 1989. A "sell-through" period had been allowed to accommodate products manufactured prior to July 1, 1989. These dates were September 30, 1989 for packaging foam blown with CFCs, and December 31, 1989 for aerosols propelled with CFCs.

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APR 6 1990
REGIONAL CLERK'S OFFICE

I have attached a copy of this legislation and Regulation 394/89 for your information.

Several additional regulatory initiatives are planned for July 1, 1990. Many of these initiatives are being developed by our staff and have not yet been finalized.

Although alternatives to CFCs will not be available in global quantities until sometime between 1993 and 1995, some companies have already adopted these chemicals in the manufacture of commercial equipment. In addition, the technological advances required to complete re-tooling are underway and are anticipated to be in line with the availability of alternative chemicals.

In the meantime, we are planning to ensure that CFC recycling plays a large role during the interim period.

The development of recycling systems in four key areas are required:

i) during the service of commercial air conditioning/refrigerator units
ii) during service of mobile air conditioning systems
iii) during service of household refrigeration and air conditioning systems
iv) during the demolition of white goods (refrigerators, freezers) and automobiles with air conditioning systems

To address your suggestion to forbid sale of refrigerants to untrained persons, it is important that you are aware of the work completed by HRAI (Heating, Refrigeration & Air Conditioning Institute). They have recently developed a communications strategy to prepare posters, literature, and instruction to service contractors to promote recycling technologies. Staff of my Waste Management Branch are working closely with the HRAI in the further development of these initiatives.

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I hope this information will be helpful to you, and as you can see, we have many plans in this area. Thank-you for your letter.

Yours sincerely,

Jim Bradley

Jim Bradley
Minister

Enclosure

Bill 218 **Government Bill**

2ND SESSION, 34TH LEGISLATURE, ONTARIO 38 ELIZABETH II, 1989

Bill 218

An Act to amend the Environmental Protection Act

The Hon. J. Bradley
Minister of the Environment

1st Reading	February 16th, 1989
2nd Reading	May 16th, 1989
3rd Reading	June 14th, 1989
Royal Assent	June 20th, 1989

(Reprinted as amended by the Committee of the Whole House)

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EXPLANATORY NOTES

The making, use, transfer, display, transportation, storage and disposal of specified things containing an ozone depleting substance and of specified things made using an ozone depleting substance are prohibited (section 1).

The Lieutenant Governor in Council is authorized to make regulations respecting the use, transfer, display, transportation, storage, recycling and disposal of things containing or made using an ozone depleting substance. In addition, the Lieutenant Governor in Council may make regulations providing for exemptions from the requirements of the Bill and regulations thereunder (section 2).

Bill 218 **1989**

An Act to amend the Environmental Protection Act

HER MAJESTY, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:

1. The *Environmental Protection Act*, being chapter 141 of the Revised Statutes of Ontario, 1980, is amended by adding thereto the following Part:

PART V-A

OZONE DEPLETING SUBSTANCES

Definitions

47i. In this Part,

"designated" means designated by the regulations;

"ozone depleting substance" means a chlorofluorocarbon, a halon or any other substance that has the potential to destroy ozone in the stratosphere.

Application

47j. Sections 47k and 47-l apply only in respect of the following ozone depleting substances:

1. CFC-11, also known as fluorotrichloromethane.
2. CFC-12, also known as dichlorodifluoromethane.
3. CFC-113, also known as 1,1,2-trichloro-1,2,2-trifluoroethane.
4. CFC-114, also known as 1,2-dichloro-1,1,2,2-tetrafluoroethane.
5. CFC-115, also known as 1-chloro-1,1,2,2,2-pentafluoroethane.
6. Halon-1211, also known as bromochlorodifluoromethane.

7. Halon-1301, also known as bromotrifluoromethane.

8. Halon-2402, also known as dibromotetrafluoroethane.

9. Such other ozone depleting substances as may be designated.

Prohibition

47k. No person shall, after the 1st day of July, 1989, make, use, transfer, display, transport, store or dispose of,

(a) any thing, other than a prescription drug, containing an ozone depleting substance that acts as a propellant; or

(b) any designated thing or any thing of a designated class if that thing contains an ozone depleting substance.

Prohibition

47-l. No person shall, after the 1st day of July, 1989, make, use, transfer, display, transport, store or dispose of,

(a) any packaging, wrapping or container that is made in a manner that uses an ozone depleting substance; or

(b) any designated thing or any thing of a designated class if that thing is made in a manner that uses an ozone depleting substance.

2. Section 136 of the said Act, as amended by the Statutes of Ontario, 1983, chapter 52, section 23, 1986, chapter 68, section 11 and 1988, chapter 54, section 45, is further amended by adding thereto the following subsection:

Regulations relating to Part V-A

(4a) The Lieutenant Governor in Council may make regulations relating to Part V-A,

(a) designating any matter referred to in the Part as designated;

(b) classifying ozone depleting substances, things containing an ozone depleting substance and things made in a manner that uses an ozone depleting substance, providing for exemptions in respect of any such class from any requirement of the Part or of the regulations made under this subsection, and prescribing conditions for any such exemption;

(c) respecting the making, use, transfer, display, transportation, storage, recycling or disposal of things containing an ozone depleting substance and of things made in a manner that uses an ozone depleting substance;

(d) prescribing that designated industries devote a designated percentage of their budget to undertake research and development to develop substitutes for ozone depleting substances.

3. This Act comes into force on the day it receives Royal Assent. Commencement

4. The short title of this Act is the *Environmental Protection Amendment Act, 1989*. Short title

Schedule

Class exempt from section 47k of Act

The following things containing an ozone depleting substance that acts as a propellant:

1. Drugs or medicines that have a "Drug Identification Number" issued under the Food and Drugs Act (Canada).

2. Bronchial dilators, topical anaesthetics and veterinary powder wound sprays.

3. Spermicidal contraceptive foams.

4. Release agents for moulds used in the production of plastics and elastomer materials.

5. Cleaners and solvents for commercial use on electrical or electronic equipment.

6. Insulation foam products.

7. Protective sprays for application on high quality photographs used in research.

8. Lubricants used in mining.

9. Products used during flight in the maintenance and operation of aircraft.

REGULATION
394/89

REGULATION MADE UNDER THE ENVIRONMENTAL PROTECTION ACT

Ozone Depleting Substances - General

1. The class of things listed in the Schedule is exempt from section 47k of the Act.

2.-(1) The use, transport, storage and disposal of things containing an ozone depleting substance that acts as a propellant are exempt from section 47k of the Act.

(2) The display for purposes other than sale or promotion of things containing an ozone depleting substance that acts as a propellant is exempt from section 47k of the Act.

(3) The transfer and display of things containing an ozone depleting substance that acts as a propellant are exempt from section 47k of the Act until the 31st day of December, 1989.

3.-(1) The use, display, transport, storage and disposal of packaging, wrapping and containers that are made in a manner that uses an ozone depleting substance are exempt from section 47-1 of the Act.

(2) The transfer of packaging, wrapping and containers that are made in a manner that uses an ozone depleting substance is exempt from section 47-1 of the Act until the 30th day of September, 1989.

(3) The transfer of packaging, wrapping and containers that are made in a manner that uses an ozone depleting substance and that are in existence in Ontario on the 30th day of September, 1989 is exempt from section 47-1 of the Act.

RECEIVED APR 3 1990

Consumers Glass
A member of the Consumers
Packaging Group

777 Kipling Avenue
Toronto, Ontario M8Z 5Z4
Telephone (416) 232-3000
Telex 06-967

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New Supply Contract Arrangements for Recyclable Glass Now Available from Consumers Glass

Recyclers participating in the Ontario Blue Box curbside collection program now have the option of contracting with Consumers Glass for a guaranteed, five-year market to January 1995 for contamination free, colour sorted glass.

The new supply contract offer was formally announced at a meeting of the Recycling Council of Ontario, Thursday, March 8, in Toronto.

Under the new offer, contract arrangements will also guarantee the price of $60 per ton paid by Consumers Glass for these recyclable materials for a period of two years. Price adjustments following this will reflect market conditions prevailing at the time.

The new contract offer is intended to provide recyclers with the market stability needed to promote the development of the Blue Box program. It will also support one of Consumers Glass' major objectives, which is to help conserve the environment by achieving a 50 percent recycling rate across Canada within ten years.

In 1989, Consumers Glass recycled over 40,000 tonnes of glass collected through the Blue Box program. This figure is expected to double by 1992, as new recyclers come on stream and as the public becomes more knowledgeable about the items that can be recycled, including bottle glass of all colours; and those that cannot -- such as light bulbs, pottery, window glass and chinaware.

Glass is the perfect recycling medium. Glass containers can be recycled by Consumers Glass again and again to make new containers, with no loss of quality. More glass is recovered by the Blue Box program than any other packaging material, including plastic and metal cans.

For more information on the new supply contact arrangements, please contact:

Roger Adams
Director of Public Affairs
(416) 232-3369

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Ontario

ffice of the Minister
Bureau du ministre

Ministry of Municipal Affairs
Ministère des Affaires municipales

777 Bay Stree
Toronto, Onta
M5G 2E5
(416)585-7000
(416)585-7000

April 9, 1990

Mr. Reg J. Whynott
Regional Chairman
Regional Municipality of Hamilton-Wentworth
P.O. Box 910
Hamilton, Ontario
L8N 3V9

Dear Mr. Whynott:

Thank you for your letter regarding your concerns over Bruce Trail access to the Red Hill Creek Valley from the Red Hill Creek Expressway.

I have copied your letter to the Honourable William Wrye, Minister of Transportation, as his staff is working directly with the Regional Municipality of Hamilton-Wentworth on this project. My colleague has assured me that his staff is working to negotiate an acceptable solution to the access issue.

Thank you for your invitation to send a Ministry representative to the April 12, 1990, meeting of the Chairman's Advisory Committee on Environmental Issues; however, it would be more appropriate to forward your request to the Minister of Transportation.

Sincerely,

John Sweeney
Minister

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General Motors of Canada Limited

President and General Manager

Dear Sir or Madam:

At General Motors of Canada Limited we share with all Canadians the objective of protecting the natural environment be it land, water or air. As the largest automotive manufacturer in the country, we are demonstrating our commitment to sustainable development with many significant environmental initiatives.

Enclosed is a copy of "General Motors of Canada and Our Environment" which details some of the many achievements which we have made with respect to our products, plants and processes to help the global effort to protect the environment.

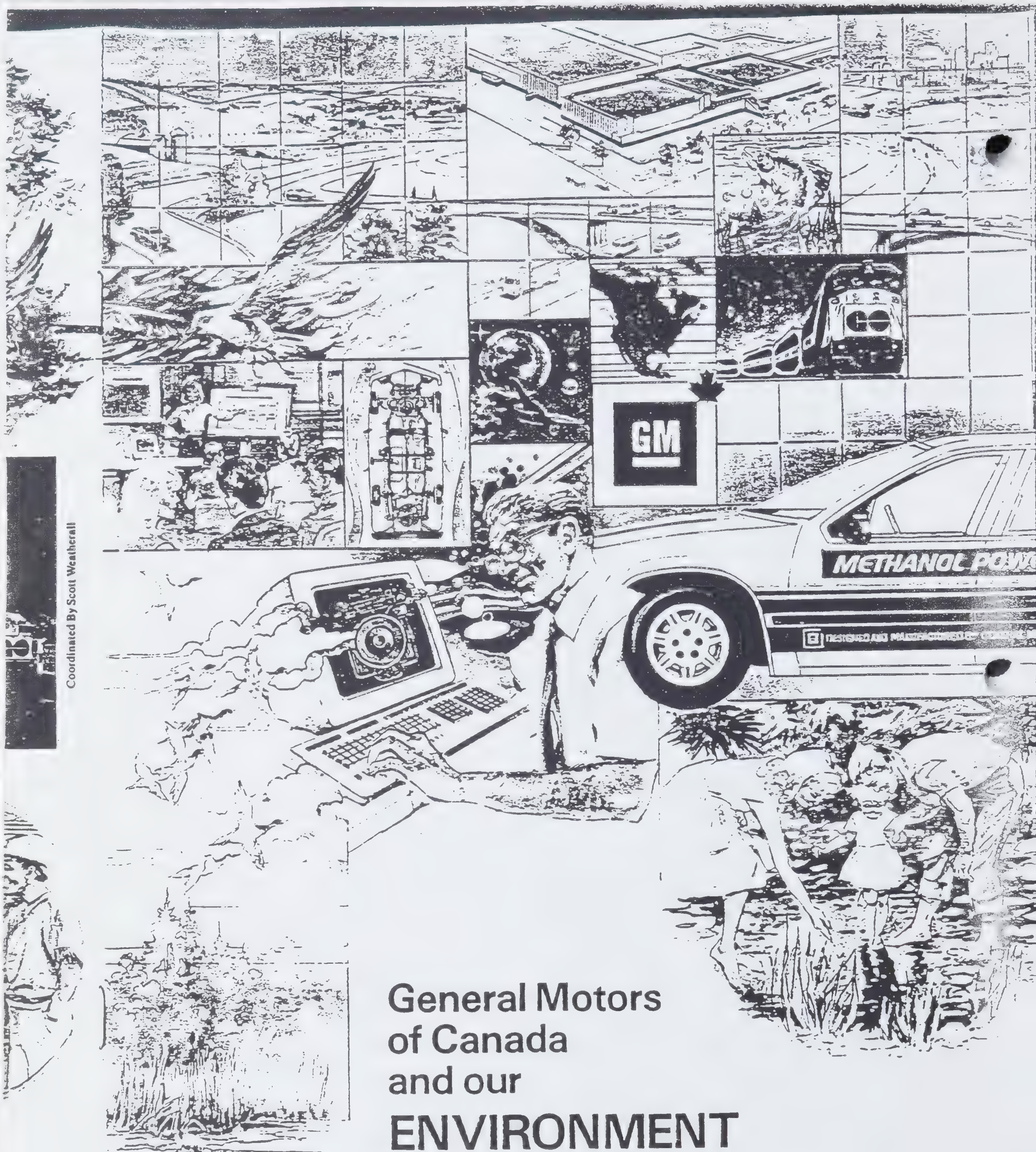
At General Motors of Canada we are proud of what we have accomplished so far and are continuing to work towards a cleaner Canada.

Sincerely,

George Peapples

George A. Peapples

1908 Colonel Sam Drive, Oshawa, Ontario L1H 8P7


GM
GO
METHANOL POW

Coordinated By Scott Weatherall

General Motors of Canada and our ENVIRONMENT

Protecting and Preserving our Environment

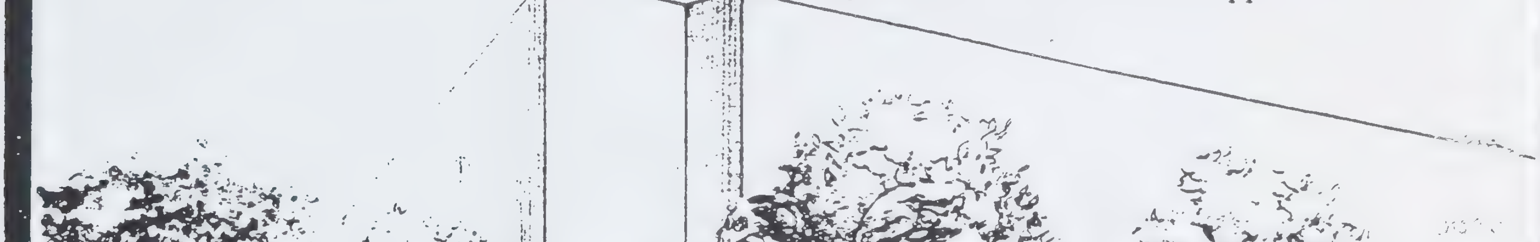
General Motors of Canada Limited is the largest automotive manufacturer in this country, with 12 vehicle and locomotive assembly plants and automotive component plants in Oshawa, St. Catharines, Scarborough, Windsor and London, Ontario and Ste. Therese, Quebec. Including Business Development Centres, Parts Distribution Centres and other GM facilities across Canada, we employ almost 44,000 men and women.

As concerns for the environment mount, GM of Canada continues to demonstrate that we share those concerns with our employees – and with all Canadians – by taking a leading role in protecting and preserving our land, sea and air resources. We believe in, and are committed to, sustainable development: Growth today, without damaging the future.

Product enhancements and plant improvements which achieve reductions in emissions and solid wastes are among the techniques employed in support of this. General Motors was the first to introduce a full line of automobiles operating entirely on unleaded fuels and pioneered the use of catalytic converters on vehicle exhaust systems. Emissions from our cars and light duty trucks are now reduced by 90 percent, on average, from precontrol levels.

New paint technologies in our Oshawa Truck and Ste. Therese plants significantly reduce emissions of volatile organic compounds to the environment. And chlorofluorocarbon (CFC) recycling units used by Cadillac, Pontiac-Buick, Chevrolet-Oldsmobile and Passport International dealers during service of vehicle air conditioners reduce the potential loss of ozone from the stratosphere.

In a further important move, GM has added to its remanufacturing efforts by introducing GMX, a product line featuring used General Motors parts, remanufactured to GM-approved specifications. Parts which might otherwise have been scrapped are now



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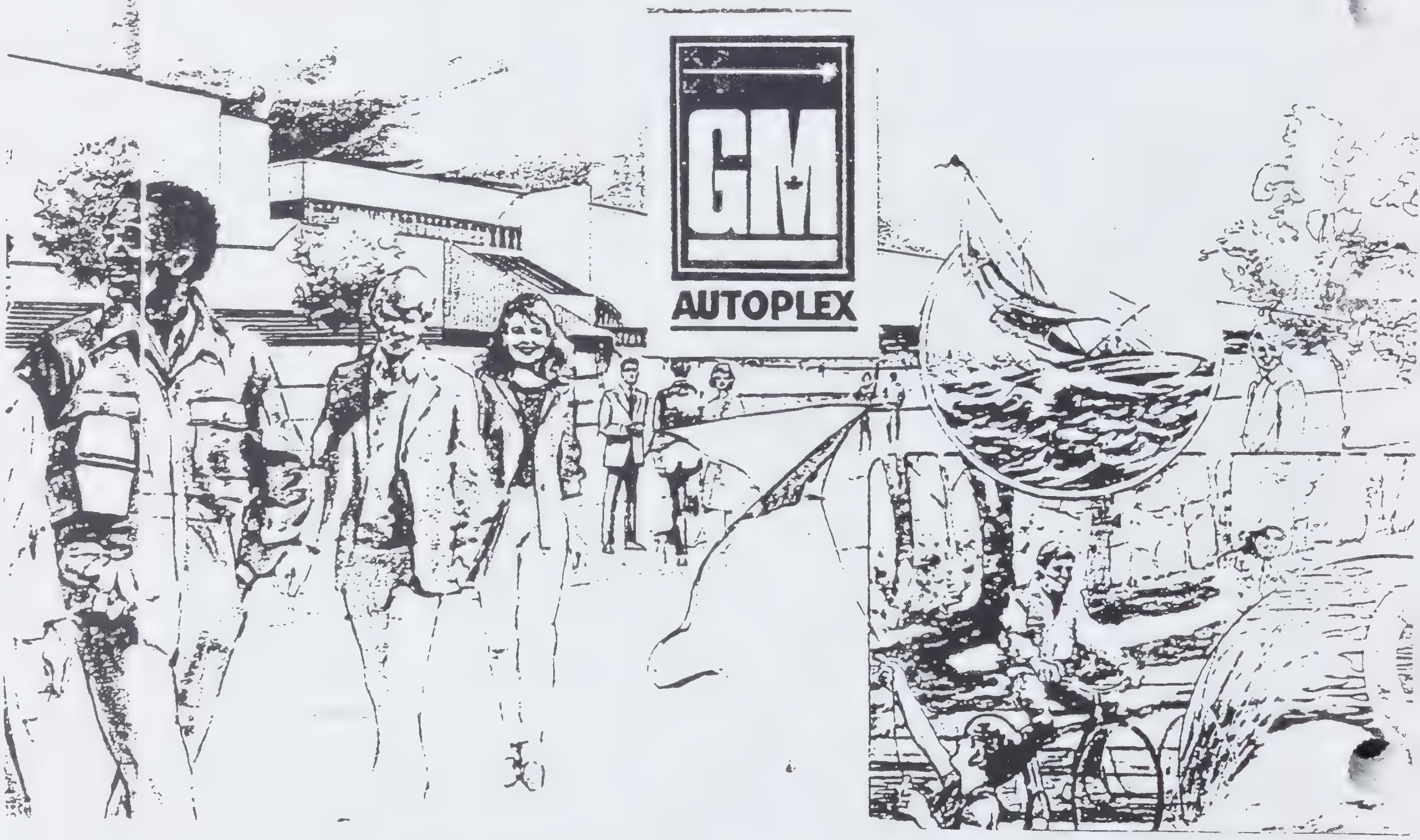
completely remanufactured and offered, as an alternative to new parts, to customers at GM dealerships in Canada.

Pyrolysis, a method for recycling the sheet moulding compounds (SMCs) used in the manufacture of GM's new Chevrolet Lumina APV and Pontiac Trans Sport minivans and Chevrolet Corvettes, is also being developed by GM. SMCs contribute to enchanced durability, reduce corrosion and provide longer vehicle life.

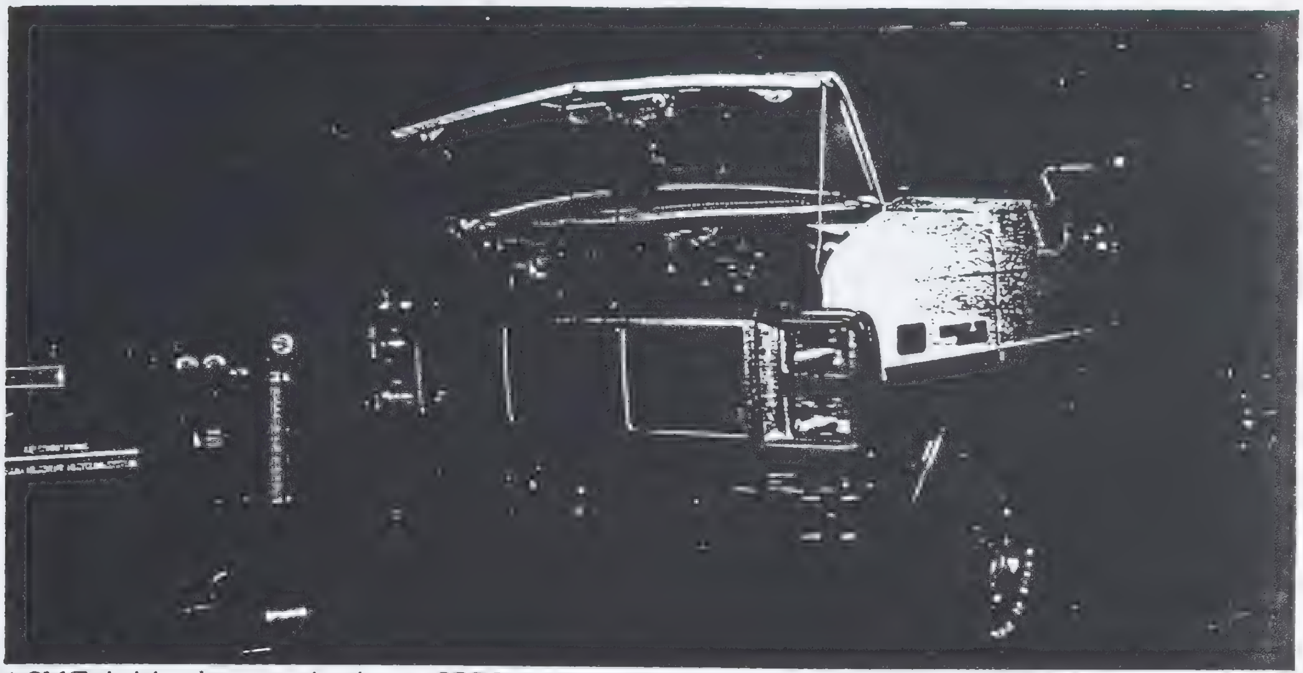
Training is critical to successful waste management and pollution control. A core group of GM employees has graduated from an environmental certification course sponsored by York University. We have established an Environment Committee composed of many of these environmental officers to ensure responsible environmental management in our plants.

In developing our new administration building on the shore of Lake Ontario in Oshawa, GM of Canada worked closely with Wildlife Habitat Canada, the Second Marsh Defence League, the Central Lake Ontario Conse tion Authority, and various environmenta engineering firms to ensure that the integrity of the local environment would not be compromised. The building and property have been carefully engineered to ensure that nature will be protected and enjoyed. The building was specially designed not to interfere with the flight path of migrating birds and a storm water control system has been built along the edge of the property to protect the neighboring Second Marsh from any runoff from our property. The climate control within the building is centred around a state-of-the-art ice storage air-conditioning system that cuts the amount of CFCs required by almost half. This is the first such system to be implemented in Canada.

We will continue to vigorously pursue new ways to enhance our commitment to sustainable development for the benefit of present and future generations. We are proud of what we have accomplished so far, and we will continue to work toward a cleaner Canada



Preserving the Ozone Layer



A GM Technician demonstrating the new CFC Recycling and Recovery unit on a Scarborough-built GMC extended van.

Photo By Jon Schill

General Motors of Canada is now involved in a coordinated corporate effort to not only reduce chlorofluorocarbon (CFC) emissions but also to develop alternatives to these compounds. In recent years the world has become increasingly aware of – and particularly sensitive to – the damage being done to the fragile ozone layer which provides protection from the sun's harmful ultraviolet rays. Evidence points to CFCs as being among the offenders.

Chlorine, fluorine and carbon atoms are contained in CFCs, which are used as refrigerants in household appliances, buildings and vehicle air conditioners, in production of industrial solvents and foam products and, until recently, as propellants in aerosol sprays. When contained, CFCs are non-reactive, non-toxic, safe and stable compounds. Liberated into the free air, however, some CFC molecules rise into the stratosphere and release chlorine through the sun's heat energy. The chlorine then reacts with the ozone to convert that protective layer into ordinary oxygen, exposing the earth to increased levels of ultraviolet rays.

In recognition of this, and in a significant step to reduce CFC emissions, GM of Canada anticipates phasing out the use of CFCs in vehicle air conditioners, beginning in 1993. Meanwhile, we became the first automotive manufacturer to begin placing recycling equipment in our dealerships which will prevent freon (CFC-12) from being vented into the atmosphere during service or routine maintenance of automotive air conditioning units. All Cadillac, Pontiac-Buick, Chevrolet-Oldsmobile and Passport International dealers servicing vehicle air conditioners in Canada — along with our assembly plants and test facilities — will help reduce CFC emissions by using this new equipment to capture and purify the freon for re-use, rather than allowing it to escape and become a potentially destructive agent.

Protection of the ozone layer is a most important priority for General Motors of Canada in its concern for the natural environment, and we support the Montreal Protocol, an international agreement to control substances (such as CFCs) depleting the ozone layer.

Reducing Vehicle Emissions

General Motors' scientists and engineers have made numerous important advances in controlling vehicle emissions.

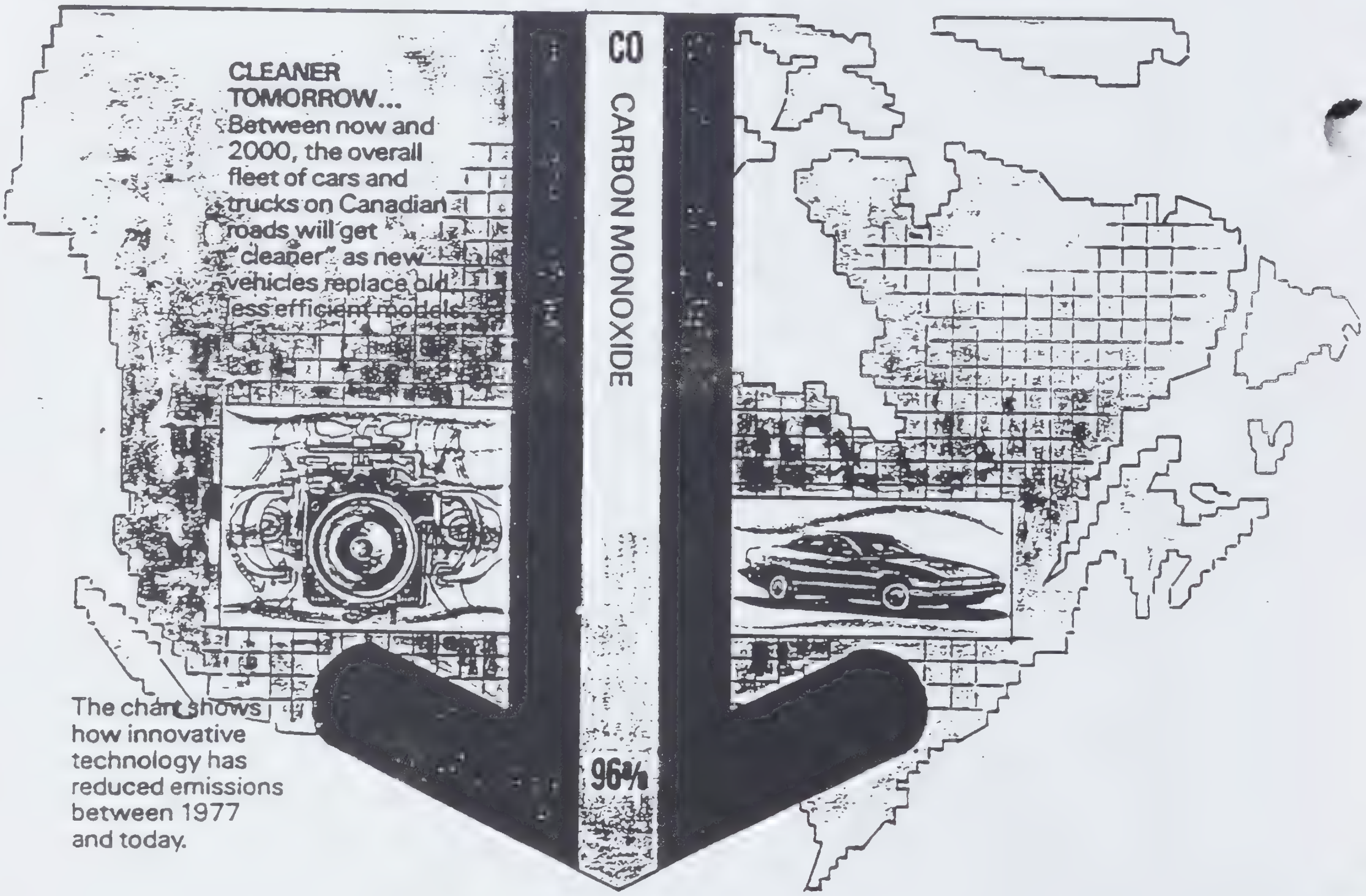
Today's cars contain emission control systems which have reduced emissions 90 percent on average from precontrol levels.

Testing done on GM vehicles shows emissions of hydrocarbons have been reduced 96 percent from precontrol levels. An overall reduction in carbon monoxides of 96 percent and a reduction of nitrogen oxides by 76 percent from precontrol levels have also been achieved. As newer vehicles replace older ones, overall emissions will decrease substantially.

These reductions in emissions are achieved through a number of technologies including catalytic converters, Positive Crankcase Ventilation, closed loop emission controls, fuel injection, electronic ignition, exhaust gas recirculation, and air injection.

General Motors supports the use of properly blended oxygenated fuels, such as methanol and ethanol. Motor gasolines that contain low levels of oxygenates not only improve octane levels, but may also reduce carbon monoxide emissions from vehicles.

We are continuing to pursue new technologies and new products to improve auto emissions and air quality. You can help too. Always use unleaded gasolines or recommended oxygenated fuels as described in your owner's manual. Have your vehicle serviced regularly to ensure that it is in top running order. Maintain your tires at the recommended pressure. If each one of us takes these small steps, the overall result will be a cleaner Canada.



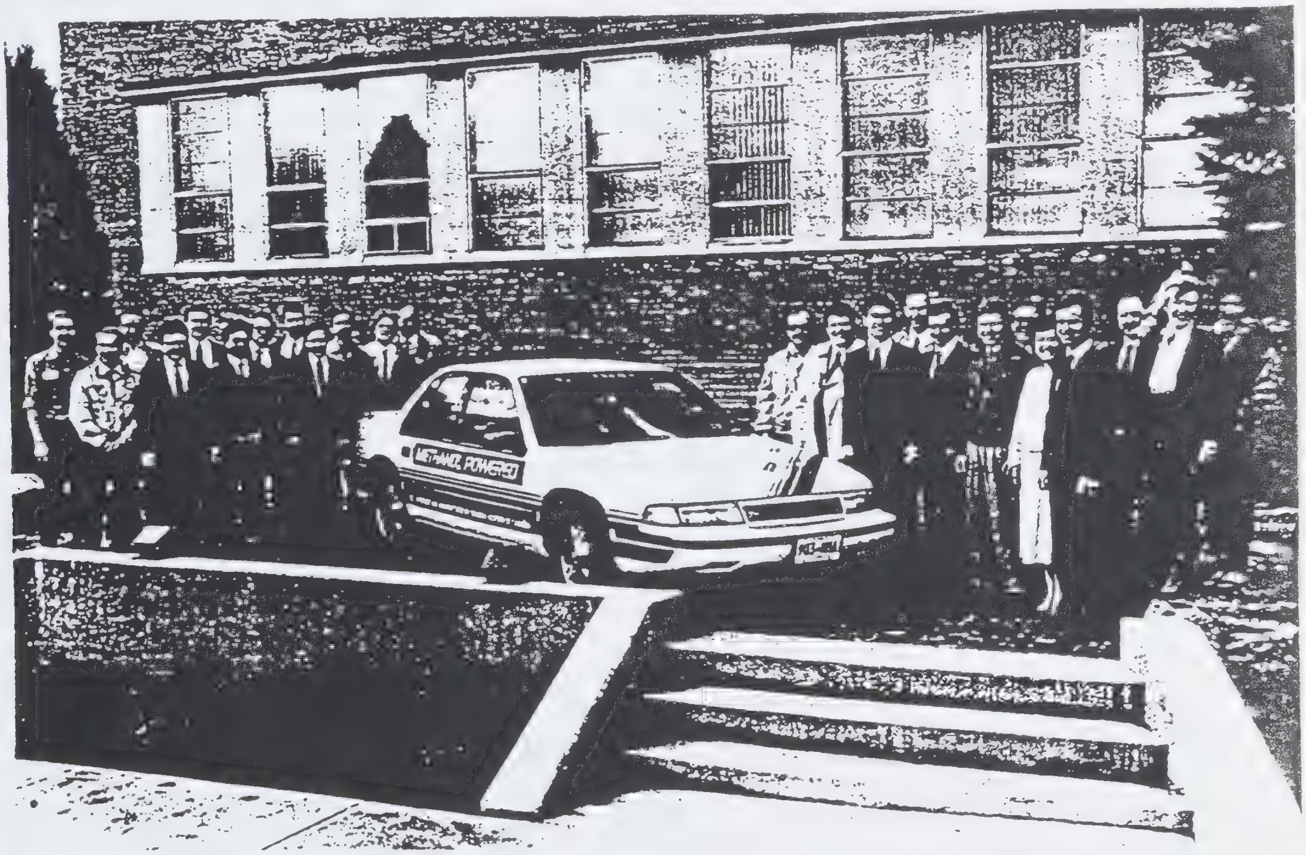
CLEANER TOMORROW... Between now and 2000, the overall fleet of cars and trucks on Canadian roads will get "cleaner" as new vehicles replace old less efficient models.

The chart shows how innovative technology has reduced emissions between 1977 and today.

Alternative Fuels

The challenge to develop alternative transportation fuels, spurred by environmental concerns over fossil fuels, is being met through a number of important initiatives at GM of Canada, a principal one being the methanol program. Methanol is made from natural gas and Canada is one of the largest suppliers in the world, exporting 85 percent of its production to world markets. While it may eventually prove to be an effective tool in achieving cleaner air in North America's large cities, a number of important environmental, mechanical and distribution questions remain to be solved. General Motors of Canada is working hard to find the answers.

Twenty Chevrolet Corsicas have been refitted by GM to operate on a range of methanol/gasoline mixtures and GM of Canada is producing 2,200 Chevrolet Luminas in Oshawa for demonstration in Southern California, which has the most severe urban smog problems in North America. To ensure reliability in all operating conditions, these cars are being tested at GM's Cold Weather Development Centre in Kapuskasing, Ontario, the Arizona Desert Proving Grounds and the

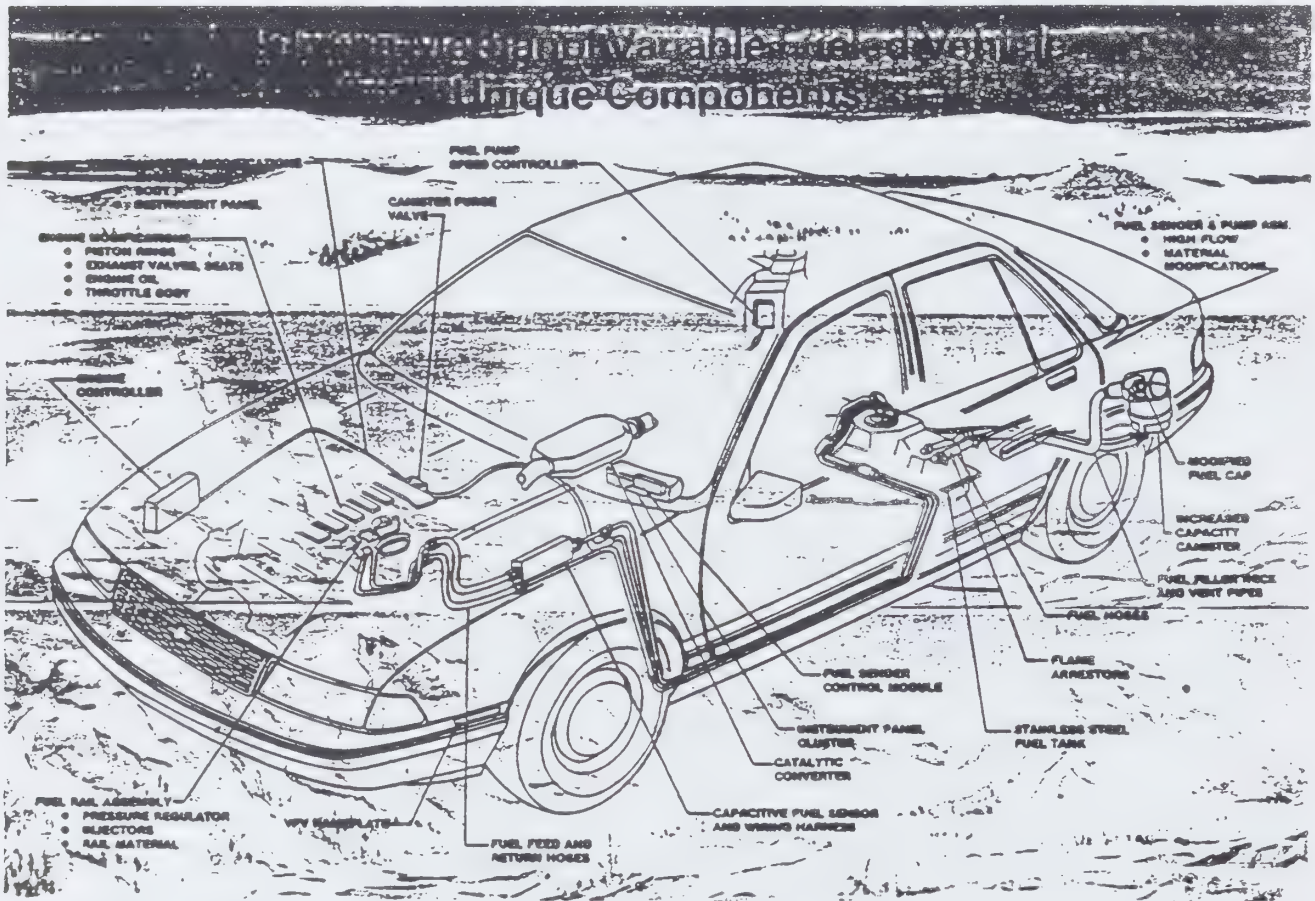


General Motors of Canada's Alternative Fuels Team, with the Oshawa-built methanol-powered Chevrolet Lumina.

High Altitude Test Centre in Colorado. The system developed by GM permits drivers to choose between operating on methanol, gasoline or a mixture of both, with the car automatically sensing and adjusting for the proper fuel mix.

GM of Canada is also working with other alternative fuels as well as providing technical assistance to Canadian companies which are retrofitting and modifying current and late model vehicles for natural gas and propane use. To supply them with electric power, vans from our Scarborough Van Plant are being retrofitted with powerful lead-acid batteries and, in cooperation with representatives of the Ontario Ministry of Energy, we are studying the potential for development of electric vehicles.

The objectives of our experiments with a wide variety of available sources of energy are to reduce vehicle emissions, enhance fuel economy and ensure technology is available to adapt to situations of fuel shortages.


Variable Fueled Vehicle
Unique Components
FUEL PUMP SPEED CONTROLLER
INSTRUMENT PANEL
CANISTER PURGE VALVE
ENGINE MODIFICATIONS
PISTON RINGS
EXHAUST VALVES, SEATS
ENGINE OIL
THROTTLE BODY
FUEL SENDER & PUMP ASM.
HIGH FLOW
MATERIAL MODIFICATIONS
ENGINE CONTROLLER
MODIFIED FUEL CAP
INCREASED CAPACITY CANISTER
FUEL FILLER NECK AND VENT PIPES
FUEL HOSES
FLAME ARRESTORS
FUEL SENDER CONTROL MODULE
INSTRUMENT PANEL CLUSTER
STAINLESS STEEL FUEL TANK
CATALYTIC CONVERTER
CAPACITIVE FUEL SENSOR AND WIRING HARNESS
FUEL RAIL ASSEMBLY
PRESSURE REGULATOR
INJECTORS
RAIL MATERIAL
VFV NAMEPLATE
FUEL FEED AND RETURN HOSES

The Oshawa-built methanol-powered Chevrolet Lumina and its unique fuel components.

Clean Air

Reducing air pollution is an important objective of General Motors of Canada.

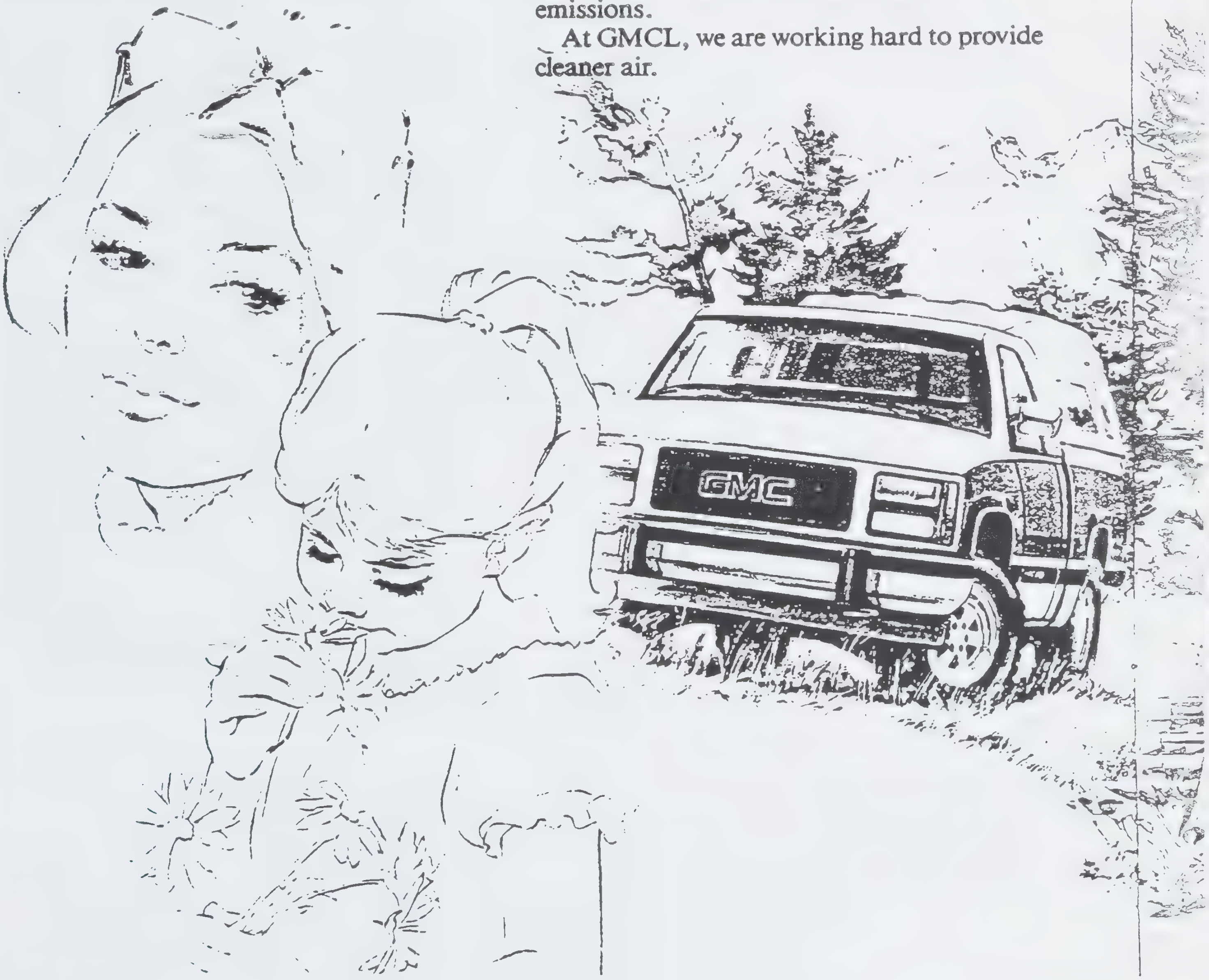
Factory stacks are sampled to ensure the efficiency of our pollution control equipment. All new stacks are certified by the Ministry of the Environment to ensure ambient air quality within our communities. Millions of dollars are spent to install control equipment as we build new plants and upgrade existing facilities to continually improve air quality.

The St. Catharines Foundry recently has completed extensive upgrades of its cupola emission control systems. A state-of-the-art microprocessor now controls the combustion of exhaust gases. Proven "top take-off" arrangements route gases from cupola furnaces to high energy scrubbers.

Scrubbers in many of our plants are used to reduce stack emissions by washing contaminants from the air stream. The water used in this process is contained and treated after the operation is complete. The result is cleaner air and improved reliability. "Baghouses" are also used in the exhaust stacks of several of our plants to remove contaminants from the air prior to discharge into the atmosphere.

GMCL has eradicated lead body filler joints from its manufacturing processes and now uses silicon-bronze instead of conventional solder welds to further reduce air emissions.

At GMCL, we are working hard to provide cleaner air.



Clean Water

GM of Canada is committed to keeping water clean and safe today to ensure its use for future generations.

Process water quality is monitored on a regular basis. Water effluent quality is checked by an outside laboratory twice a year as a standard practice within the company. Water treatment facilities throughout GM of Canada are being upgraded.

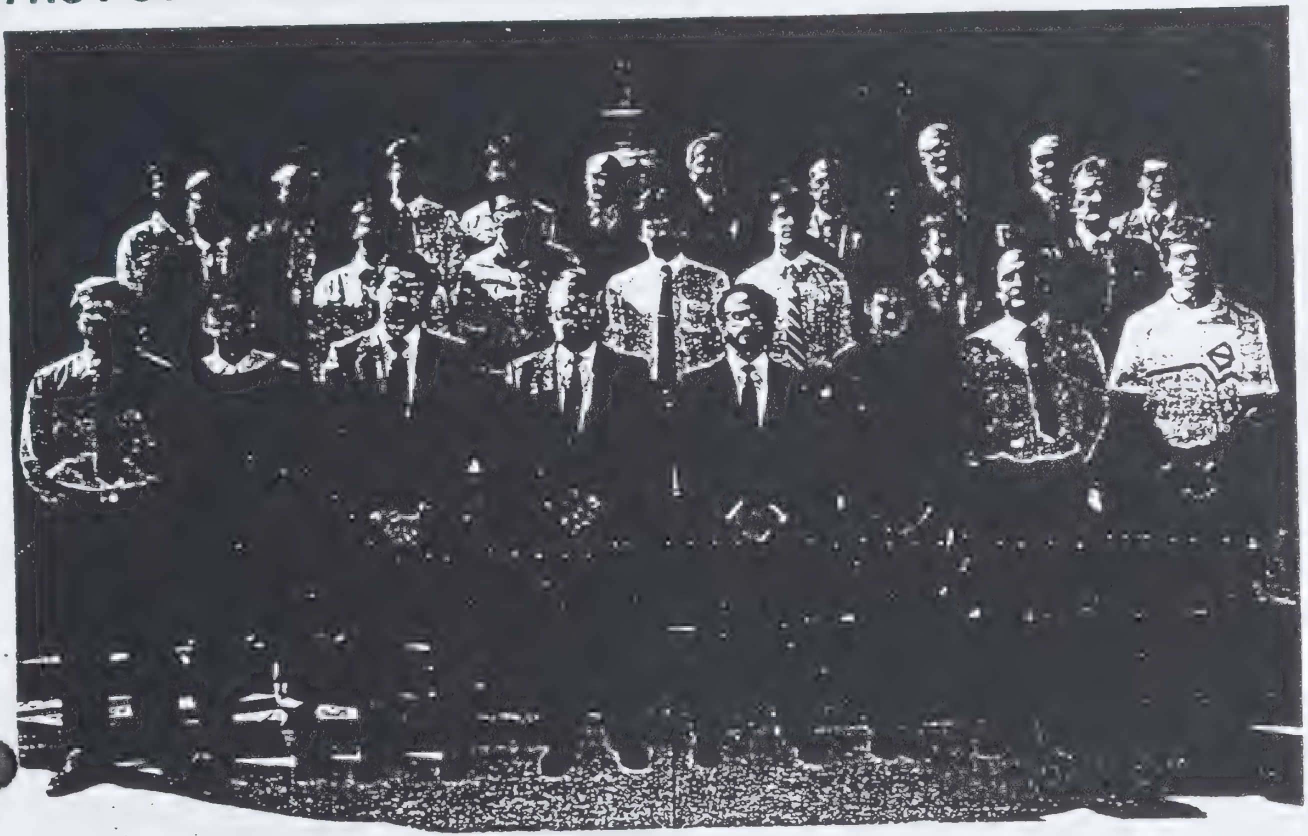
The Oshawa Fabrication Plant has phosphate, chemical oxygen demand and biological oxygen demand testing equipment which is used for regular monitoring of waste treatment plant operations.

The Oshawa Fabrication, Windsor Transmission, London Diesel, and St. Catharines Axle Plants all have waste oil recovery systems which reclaim oil from waste water. Similar facilities are planned for GM Autoplex and Ste. Therese. Water conservation methods are also an important component of GMCL's clean water strategy.

Chemicals used at GMCL are inventoried, labelled and kept in safe, appropriate containment and secondary containment areas. Each plant has a detailed emergency spill containment and counter-measure plan in place to prevent the escape of material to public waterways.

A GM of Canada Technician analyzing water samples.

The Four 'Rs' of Waste Management



General Motors of Canada's Environmental Committee.

Waste not, want not. By practicing the four 'Rs' of waste management: reduction, reuse, recycling and recovery, General Motors is significantly reducing the amount of waste generated.

We apply innovative methods in the reduction and reuse of the packaging of our incoming production parts. We are working hard to increase the use of returnable plastic and metal containers which are used to cut the amount of waste packaging that would otherwise be disposed of at landfill sites. GMCL recycles steel, cleans and returns drums, recycles oil, solvents, plastics, and batteries. All of these efforts substantially reduce the amount of waste requiring disposal.

At most facilities, cardboard is collected, segregated and recycled. At GM Autoplex broken wooden pallets and mixed burnable waste are burned to produce steam in our Energy From Waste (EFW) facility. The solid waste is burned in the EFW at a temperature of 1,000 degrees C, with a holding time of one second to ensure complete combustion and a smokeless stack.

Our plants have embarked on a wide variety of recycling projects including those involving pop cans, fine papers, cardboard and wooden pallets. At GMCL's Scarborough Van Plant, aluminum can recycling is up 42 percent this year over last year and Scarborough is currently recycling and reusing over 600 plastic drums which are used as containers for production purposes.

GM Autoplex has provided plastic drums to the Regional Municipality of Durham for use as backyard composters in the community.

General Motors of Canada has made a major commitment to waste management, and is taking positive steps to protect the environment in this manner.

Cleaner Paint Technologies

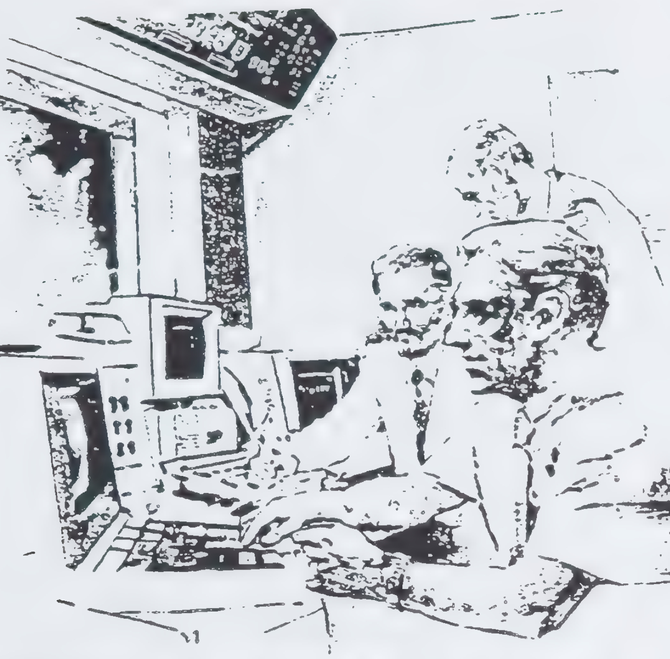
The first-ever high production volume waterborne basecoat paint system in the world, located at the Truck Plant in Oshawa, was developed by General Motors of Canada and C-I-L Paints. The dispersing agent in the coloured basecoats of the basecoat/clearcoat paint process is water, resulting in a substantial reduction in volatile organic compound emission levels as well as a very beautiful paint finish. Pigmentation (base colours) are richer and more exotic with waterborne paint systems. As part of its $450 million modernization program, the Ste. Therese plant also introduced a waterborne basecoat/clearcoat paint complex in 1989.

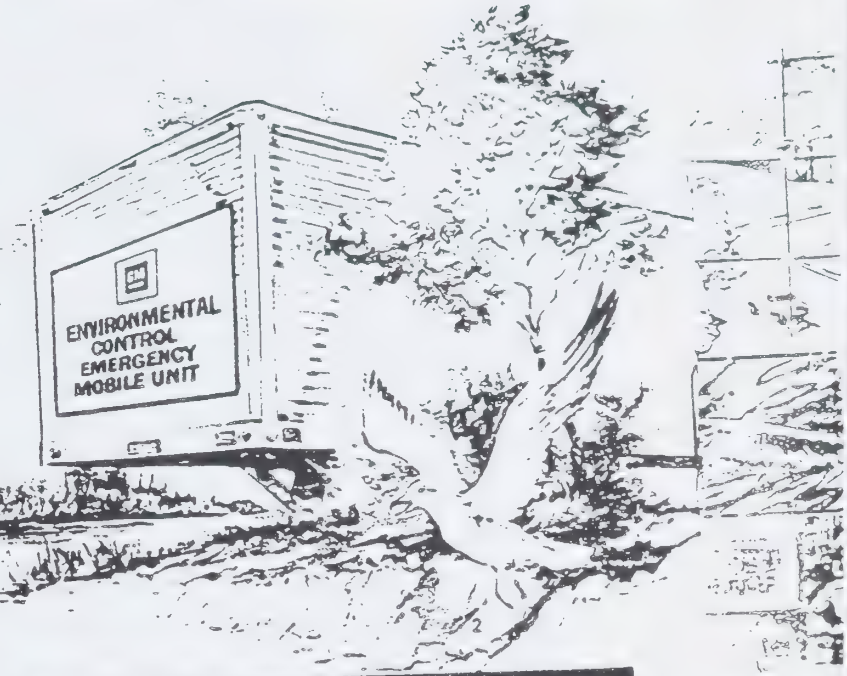
All of the topcoat paints used in our car and truck assembly plants are now lead-free as another important step to a safer environment.

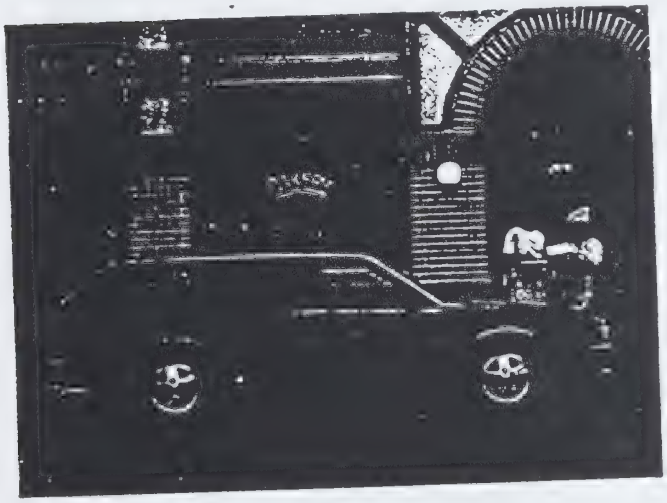
The clearcoats which provide the depth and gloss to the paint finish are now applied electrostatically. Vehicles are negatively charged by grounding, providing a conductive body for the paint. The paint is positively charged, causing an attraction to the vehicle body, reducing emissions caused by overspray. Research and development is currently being done into electrostatic applications of basecoats as well.

These new paint technologies offer the double benefit of more beautiful cars and trucks and a cleaner environment.

Waterborne basecoat paint is robotically applied at our Oshawa Truck Assembly Plant.




GM
ENVIRONMENTAL
CONTROL
EMERGENCY
MOBILE UNIT
2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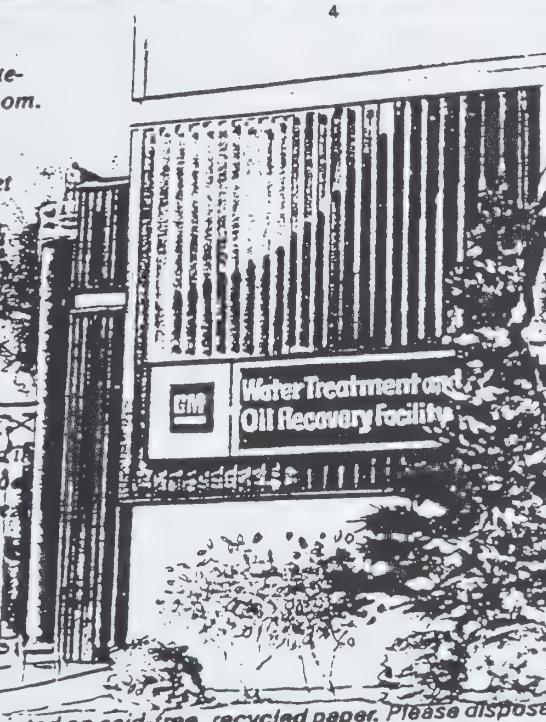
Coordinated By Scott Weatherall

1 The Windsor Transmission waste-water treatment plant control room.
2 Emergency Response Control Unit.
3 The Ste. Therese-built Chevrolet Celebrity Wagon finished with waterborne basecoat paint for a cleaner environment.
4 An East-bound GO Transit passenger train pulled by a F59PH Locomotive manufactured at London Diesel Division.
5 The St. Catharines water treatment and oil recovery facility.
6 Aluminum cans being collected in drums to be recycled at the Woodstock Parts Distribution Centre.


GM
Water Treatment and
Oil Recovery facility
5

Coca-Cola
CANS
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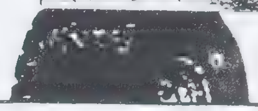
Special!

SCRAP TIRE UPDATE



Scrap tire legislation soared to new heights in 1989—from five states with scrap tire laws in January 1989 to an impressive 18 states regulating scrap tires at the year's end.

Without skipping a beat, 17 of the 1990 state legislatures have been or will be presented with measures to regulate the recycling and/or proper disposal of scrap tires. And, at least one state, New Hampshire, has already introduced and vetoed a scrap tire bill in 1990.

ADRA and *Dismantlers Digest* are working to be in the forefront of bringing you information on tire news and other pressing issues for our industry.

The following is an update of the fifty states' present and anticipated position on how tires will be handled within their borders in the coming year.

ALABAMA

- state solid waste act passed in May 1989 requires counties to develop comprehensive solid waste management plans to include a recycling component to divert 25 percent of the waste from land disposal.
- a $1.00/tire disposal fee under discussion to fund a tire cleanup program in the state permit requirements:
  - solid waste permit required for facilities which dispose
  - facilities which store and/or process tires must have health permit

ALASKA

- solid waste management planning act drafted and expected to be introduced in 1990 legislature.
- recycling bill gives bidders' preference to recycled products.
- tires generally landfilled.

ARIZONA

- no legislation in 1989 for scrap tires and none proposed for 1990.
- tires cannot be buried in municipal landfills; must be put in separate cells or stockpiled.
- Two bills passed in 1989 affect solid waste planning:
  - Act 870 requires the formulation of solid waste planning districts; each must develop a solid waste needs assessment.
  - Act 934 established service fees on landfill disposal to fund recycling and solid waste planning programs.

CALIFORNIA

- scrap tire law (AB1843) passed in 1989 established a $.25/tire disposal fee on all used tires left with a dealer or other seller. Effective July 1, 1990.
  - Major components of the law include:
    1. seller may retain 10 percent of tire disposal fee, remainder goes to the California Tire Recycling Management Fund
    2. tire fund (approximately $7 million annually) will be administered by the Integrated Waste Management Board (formerly the California Waste Management Board) to develop a tire recycling program; financed grants to qualifying companies engaged in tire shredding, retreading, polymer treatment, rubber reclaiming and crumb rubber production, manufacture of products from used tires
    3. the bill requires all entities with more than 500 waste tires to file a registration statement and annual reports with the board districts
    4. permit regulations for major (over 3,000 tires) and minor (under 3,000 tires) waste tire facilities specified in the law include fire prevention, security and vector control measures; size and height limits of tire piles; closure and pile reduction plans
    5. provision for designated regional landfills to accept and store shredded tires
    6. five percent purchase price preference for products made from materials derived from used tires
- SB 1322 (also passed in 1989) directs the board to evaluate current state and federal quality standards for retreaded tires, identify obstacles for an increased market for retreads, and determine the number of retreads sold in California. The board and the Department of General Services, in consultation with the retreading industry would be allowed to promulgate regulations for the purchase of retreaded tires by the State of California. In addition, retreads would be required for use on state vehicles issued for short-term use through Fleet Administration after July 1, 1991.

COLORADO

- scrap tire regulations for storage, disposal and processing facilities effective May, 1988:
  - limits the number of tires a facility can accept to the number it can process, store, recycle or dispose of in a year
  - identifies storage requirement which include fire control, security measures, access' roads and proper solid waste and environmental permits
  - defines safe storage as placing tires or tire shreds in trenches and covering with plastic and dirt
- five facilities permitted as of January 1990, with several more permit applications in review
- enforcement program in place

CONNECTICUT

- tire storage facilities must be licensed by the state Department of Environmental Protection (DEP). Requirements include groundwater protection, environmental health and safety provisions and financial assurance.
- state mandatory recycling act designates tires as future recyclables.

DELAWARE
- no legislation.
- two county landfills contract mobile shredding services. Use shreds as aggregate replacement on landfill sites.

FLORDIA
- scrap tire law enacted in 1988 (SB 1192).
- provisions implemented in 1989:
  April
  - owners of waste tire sites must have notified the Department of Environmental Regulation (DER)

  May
  - permit applications for processing facilities and modifications to permits for solid waste management facilitues due
  - general permit notifications for small processing facilities, collection centers and mobile oeprators are due

  July
  - tires not accepted at landfills unless they are cut
  - $.50/tire fee on new tires sold in 1989. After 1989 fee increases to $1.00/tire
  - waste tire sites must be closed, under a closure permit or located at a permitted facility
  - processing or disposal facilities must be under permit
  - small processing facilities, collection centers and mobile operators must have general permit
  - waste tire collectors must be registered

GEORGIA
- comprehensive solid waste management and recycling bill introduced, would require state to develop state solid waste management plan
  - draft includes language that would give city, county or other local solid waste districts the authority to restrict certain wastes within their jurisdiction. Effective July 1, 1990.
    —includes provisions specific to tires
    —local governments would have the authority to ban tires at landfills within their jurisdictions
    —contains a requirement that tires be shredded prior to disposal
    —recommends a $1.00/tire disposal fee imposed on the sales of tires. Local government would have responsibility for collection of fee and to assure the proper, environmentally sound management of tires.

HAWAII
- SB 2478, a waste tire bill has been introduced. Proposed requirement of the bill includes:
  - $.25 fee on disposal of tires to be collected by tire dealers when tire is left for disposal at dealers
  - would allow for storage of tires in specific locations at landfills (monofill). State waste management regulations already have this provision
  - tire recycling facilities would be required to obtain a permit. State solid waste regulations already require recycling facilities to be permitted
- Honolulu County is completing a recycling study for tires. County study is expected to recommend a tire disposal fee to fund tire shedding and/or other tire recycling facilities. County study identifies fuel and asphalt-rubber as potential markets.

IDAHO
- proposed bill which would require statewide solid waste planning has been introduced. Contains resolutions to encourage recycling.

ILLINOIS
- HB 1085 (PA 86-452) enacted 8/31/59 amends the Environmental Protection Act to create the Used Tire Management Program which includes provision for:
  - cleanup of tire accumulations
  - development of markets for tire-based products
  - regulations to control mosquito infestations in tire accumulations
  - financial assistance to units of local government for these activities
  - establishes the Used Tire Management Fund, effective January 1, 1990, sunsets December 31, 1994
  - $.50 of the revenue received per vehicle title will be deposited in the fund. Approximately $1.7 million is expected to be generated annually
  - legislation directs EPA to write regulations governing licensing of transporters and tire storage. Draft rules expected in early 1990

INDIANA
- SB 067 introduced and passed by Senate. Current status: before House. Proposed bill would require effentive July 1, 1990:
  - that tires be shredded/cut prior to landfilling. Tire shreds could only be landfilled if legitimate recycling not available
  - stores of more than 50 tires must obtain permit
  - Department of Environmental Management (DEM) must develop waste tire storage facility inspection program
  - $1.02/tire tax on the retail sale of new tires. Revenue from the tax would fund tire pile cleanup and recycling activities
  - a waste tire management fund to assist DEM in abatement of illegal piles
- current state solid waste law stipulates storage capacities for whole and shredded tires.
- storage/recycling facility permit requirement include:
  - proof of financial responsibility
  - records to show quantity of material (whole, cut or shredded) shipped from the site and documentation showing its final destination
- site closure plan
  - Board of Health charged with enforcing the cleanup of known stockpiles. Cleanup requirement includes:
  - buried tires must have two feet of cover; existence of the pile and/or burial of the tires on the land must be recorded on the property deed

IOWA
- House file 753 passed in 1989 bans whole tires from landfill disposal by mid-1991.
- in-state tire study currently underway as required by House File 753. Iowa EPA, charged with conducting the study will address stockpile identifications, recommendations for pile remediation, alternatives to land disposal of tires, market development, define acceptable methods for processing tires prior to landfilling (i.e., shredding/cutting/slicing/chipping)

KANSAS

- HB 2362 carried over from 1989 legislative session in the house Energy and Natural Resources Committee recommends:
  - $1.00/tire tax on the retail sale of tires to fund waste tire recycling
  - establishes a grant program to make monies available to counties for waste tire recycling facilities
  - limits all businesses to a maximum of 1000 tires on site at any time
  - tires may be disposed of in landfills if cut in sufficiently small parts

KENTUCKY

- HB 32 posted in Natural Resources and Environmental Committee January 11, 1990. The bill would:
  - create a trust fund for cleanup of tire piles
  - require registration of tire piles with accumulation of 30 or more tires
  - require establishment of a loan program to avoid further waste tire piles

LOUISIANA

- comprehensive Solid Waste Management Act passed in 1989, stipulates:
  - tires must go to permitted sites for recycling/disposal. Effective January 1, 1990
  - after January 1, 1991 whole tire will not be accepted at landfills for disposal. Tires must be cut or shred prior to disposal

MAINE

- LD 1431 requires Maine residents to pay a $1.00/tire advance disposal fee beginning January 1, 1990 to fund pile cleanup and scrap tire recycling grants and loan programs.
  - the legislature mandated funding for a study of asphalt rubber to be conducted by the Maine Department of Transportation in 1990.
  - siting and operation of tire shredders including licensing requirements of scrap tire facilities previously governed by the solid waste management regulations passed in 1987.The rules which apply to tire storage facilities, include provision for surface and groundwater protection, buffer ones, fir protection, insurance plans. Tire storage facilities must also be licensed in conformity with state requirements.
  - proposed non-hazardous waste transporter rules (Chapter 411) would establish the requirements and procedures for obtainwng a license to transport solid waste, special waste or septage in Maine. The proposed rule establishes different categories of waste transporters which affects manifest requirements. Under the proposed rules scrap tire transporters would be required to provide the name and location of the waste disposal facility.

MARYLAND

- emergency scrap tire law passed in 1989. Under the law which took effect immediately, tire dealers, recyclers and other tire collectors may not store used tires unless they prove within 90 days that they have a market for the tires either by showing contracts for the material or otherwise documenting the firm's efforts to secure markets. If tire collectors don't satisfy the requirement for selling or disposing of the tires they are required to use a state-approved disposal system. The law also allows Maryland's Secretary of the Environment to take remedial action and/or order removal of tires at any site if he determines disposal may be carried out improperly or in a way that threatens the environment.
- Department of Natural Resources drafting regulations for storage/processing facilities, and collectors as required by legislation.
- Maryland's scrap law is singular in that it creates a recycling and cleanup fund through loan authorizations and state budget appropriation rather than through taxes or fees.
- state is also conducting a markets study for recyclables including tires.

MASSACHUSETTS

- interim policy on tire disposal and stockpiling issued in 1988. Policy encourages tire shredding prior to landfilling. Defines whole tires as bulky waste subject to landfill criteria established by local Board of Health. These agencies have authority to ban whole tire disposal atl andfills.
- no current or pending legislation on scrap tires.

MICHIGAN

- three bills active in legislature affect scrap tires:
  - HB 5338: would require a $1.00/tire disposal surcharge for each vehicle registered to be collected by the secretary of state at time of registration. The bill contains provisions which would: create a tire recycling fund and provide for its use; prescribe the powers and duties of certain state agencies and officials; specify dates for the repeal of certain parts of the act and/or the entire act
  - HB 5339: is a technical bill designed to amend the Michigan vehicle code to allow the transfer of funds collected from the tire disposal surcharge as provided in the tire recovery act among the appropriate state agencies
  - HB 4068: is a regulatory bill governing the storage and disposal of scrap tires

MINNESOTA

- scrap tire law passed in 1985 require a $4.00 tax on vehicle title transfers to fund a sell-defined stockpite cleanup program and a grant/loan program for companies recycling, reusing or processing tires. The law also banned tires from the landfill.
- a new waste tire law became effective April, 1989 requiring tire dealers or businesses which sell tires to accept as many waste tires from a customer as are sold to that customer.

MISSISSIPPI

- waste minimization legislation introduced.
- a temporary moratorium on siting of new waste facilities has been recommended by the state legislative and regulatory leadership.

MISSOURI

- two pieces of solid waste legislation introduced contain scrap tire provisions. Both HB 949 and SB 530 would require:
  - landfilling of whole tires be prohibited after January 1, 1993. Waste tires would have to be cut, chipped or shredded prior to landfilling
  - tires be delivered to retailer, wholesaler or recycling facility for disposal. Retailer must post notice outlining their responsibility to take back tires
  - $1.00/tire tax on retail sale of new tires. New tires sold solely for resale are exempt
  - waste tires storage permits
  - that the Department of Natural Resources encourage the voluntary establishment of waste tire collection centers at retail tire selling businesses and waste tire processing facilties

MONTANA

- two-year legislation reconvenes in January 1991.
- tires are currently accepted at landfills but are required to be separated and stockpiled or disposed in separate areas (monofills).
- scarp tire collection/storage facilities must be permitted and licensed as a landfill.

NEBRASKA

- LB 163 a carry-over waste reduction and recycling bill designed to set-up a funding mechanism for grants program, is in second state consideration before the 1990 legislature. LB 163 recommends a $1.00/tire fee on the sale of new tires and a yearly business fee based on gross sales of tangible goods, as funding mechanisms. Monies from both fees would go into a general waste recycling fund.
- an add-on to the bill ear-marks 25 percent of the fund for tire-related research and projects.

NEVADA

- two year legislature. Next legislature session 1991.
- regulatory agencies completing work on Subtitle D requirement this year.
- no specific study of scrap tire legislation planned as of January 1990.

NEW HAMPSHIRE

- Scrap tire legislation was introduced and defeated in January, 1990. Would have required retail tax on tires.
- Chapter 89-263 of HB 322, an Automotive Waste Disposal measure passed in 1989 allows towns to establish funds and develop programs for managing automotive wastes including tires, batteries and used oil. The new chapter gives town the option to set-up a trust fund for managing these wastes through a town-imposed vehicle registration fee* schedule:

  $2.00/registration of two-wheeled vehicles
  $3.00/registration of auto, pick-up and light trucks
  $5.00/registration of heavy trucks

  - Town retains $.50 of each registration fee. Remainder goes to a recycling fund for specified auto wastes.
  - Towns cannot charge tipping fee of tires, batteries, waste oil if they change the additional vehicle registration fee
- The Solid Waste District Law (RSA 149m) requires towns/districts to provide a site for tires. Charge are between $1.00–$2.00/tire currently.

NEW JERSEY

- a statewide mandatory Recycling Act passed in 1987 affects tires as follows:
  - tires qualify for municipal tonnage grant credits specified in the act
  - final report one economically feasible methods for tire recycling and disposal presented to the governor and legislature in 1989. Legislative action anticipated in 1990
  - contains a provision for industries purchasing new recycling equipment to receive a 50 percent tax credit against their state corporate business tax
  - Department of Environmental Protection has completed a Recycling Handbook for Selected Material (batteries, waste paper, plastics, ferrous auto, scrap tires)
  - requires the Department of Transportation to review and modify its specifications for the use of recycled materials including crumb rubber

NEW MEXICO

- two waste tire bills have been introduced.
- SB 67 would require a $1.00/tire tax on the sale of new tires. Dealer/sellers would retain $.10 of each dollar and the state financial department would retain $.07 for administrative costs. The remaining $.83 would be deposited in a fund for vehicle tire recycling:
  - counties would be assigned the responsibility of establishing their own collection and disposal program for waste tires.
- HB 338 would require a $1.25/tire tax on the sale of new tires. Disbursement is similar to SB 67.
  - county government would be required to comply with state regulations for waste tire collection and disposal.

NEW YORK

- legislation passed in 1989 requires that owners and operators of solid waste facilities storing more than 1,000 waste tires, must either submit a permit application to the Department of Environmental Conservation or cease operation and remove the tires from the facility disposing of them in a lawful manner. Effective December 1989. Previously owners had one a year grace period to obtain permits.
- scrap tires regulated under terms of the part 360 regulations for solid waste passed by the legislature in 1988
- AB 5412 has been introduced in 1990 legislature. The bill would require a $2.00 surchage on all new vehicle tires. The fee would be collected by vehicle retailers and transferred to the state to fund tire pile cleanups and to encourage recycling facilities. Dealers would be required to accept waste tires from consumer when selling new tires.

---

*Vehicle registraiton fees are charged at both the state and municipal (town) level.

- a Senate bill has been drafted for introduction which contains provisions for licensing of tire haulers similar to the state's existing requirements for haulers of hazardous waste and medical waste.

NORTH CAROLINA

- Senate Bill 111 passed in 1989 revises a one percent sales tax on new tire sales and requires each county to provide a place to dispose of scrap tires. Tax effective January 1, 1990. Other provisions require that:
  - counties start recycling tires by March 1, 1990
  - scrap tire haulers are registered and post security bonds with the Solid Waste Branch to qualify for a merchant identification number
  - storers of more than 1,000 scrap tires must obtain a storage permit
  - counties be allowed to impose tipping fees for tires if sales tax fails to generate adequate funding
  - tire dealers, scrap tire processors and solid waste disposal facilities be encouraged to set up scrap tire collection centers.

NORTH DAKOTA

- no legislation passed.
- landfill accept tires; many monofill.

OHIO

- state solid waste management plan (HB 592) approved in June 1989 requires:
  - effective January 1, 1993—tires must be shredded or processed (cut, sliced, etc.) prior to disposal
  - effective January 1, 1995—neither whole or shredded tires will be accepted for disposal at sanitary landfills. Tires will only be accepted at tire monofills (shredded) or at legitimate recycling facilities
- Ohio EPA and DNR have completed draft rules for disposal and storage of waste tires. The rules wncluded design criteria for tire monofills for processed or shredded tires.
- A comprehensive recycling proposal introduced before the 1990 Assembly contains language which would establish funding mechanisms for recycling including a proposed tax on tires. The proposal contains procurement recommendation for recycled parts.

OKLAHOMA

- HB 1532 passed in June 1989 established a $1.00/tire surcharge on the sale of new tires. Distribution of the fee is as follows:
  - $.50 of each dollar will be used to establish a fund for cleanup of stockpiles and scrap tire recycling programs. Recyclers who process 25 percent of an existing dump in the state will be reimbursed $.50/tire from the fund. Recyclers must be permitted by the state. The remaining $.50 will be allocated to Oklahoma Department of Taxation and other agencies to cover their respective costs associated with collection of the fee. Approximately $800,000 collected as of January, 1990
- the bill requires that persons with more than 50 tires stored and retailers with more than 2,500 tires stockpiled obtain a storage facility permit
- waste tire transporters are required to show proof of delivery of waste tires to an approved facility
- one tire processing facility is currently permitted in state

OREGON

- waste tire law passed in 1987 set up a self-funded comprehensive program for waste tires including:
  - regulation of storage and landfill disposal of waste tires
  - chipping requirements for landfilling tires effective July 1, 1989
  - regulation of transportation of waste tires
  - $1.00/tire disposal tax on the sale of new tires, used to clean up tire piles and to promote the use of waste tires by subsidizing markets for waste tires or chips. As of April, 1989 $1.6 million had been collected from the tire fee

PENNSYLVANIA

- HB 1059 introduced in 1989. The legislation would prohibit landfilling of whole waste tires, require collectors and processors to be permitted and establish a waste tire abatement fund from the collection of a $2.00/vehicle surcharge on registrations and title transfers. Left House conservation Committee on October 4, 1989. This bill is currently before the House Appropriations Committee.
- state has interim policy for storage of waste tires and tire-derived materials which places limits on the amounts of waste tires and tire-derived materials that can be stored.
- Recycling Act 101 passed in 1988 shifts responsibility for solid waste disposal from municipalities to counties. It also gives the Pennsylvania Department of Transportation (DOT) power to award research and demonstration grants for the beneficial use of material with recycled content in highway construction and maintenance.

RHODE ISLAND

- Chapter 514 passed in 1989 imposes a $.50/passenger tire tax on new tire sales effective January 1, 1990. Revenue from tire tax will be deposited instate recycling fund along with monies generated from surcharges on other "hard to dispose of" wastes included in the recycling bill. State expects to raise $3 million/year from these fees.
- HB 7770 introduced in 1990 legislature establishes a $10.00/tire deposit on the sale of new tires paid at the point of sale of the tire. The proposed bill includes a complex system, of rebates and waivers plus rules for how tire distributors/manufacturers are to accept used tires.
  - the proposed bill would require manufacturers to submit yearly plans for disposal of scrap tires but limit the kind of disposal options manufacturers could put in the annual plan

SOUTH CAROLINA

- Comprehensive state solid waste bill submitted to the General Assembly January 31, 1990 contains major components of the draft scrap tire legislation (S 599) introduced in the 1989 legislature (1989 proposal went to committee but was not acted on). The proposed legislation was drafted from recommendations in a report submitted to the governor by the state solid waste task force. The task force was appointed by the governor in 1989.
- proposed legislation includes provisions for:
  - $2.00/tire tax on the sale of new tires, $.25 of the fee would be retained by dealers, the remaining $1.75 would revert to the state tax commission to be disbursed at the rate of $1.00/tire to counties based on the number of vehicles registered in the county for use in establishing collection, recycling and/or disposal sys-

tems for the country's scrap tires. $.75 would be deposited into a state scrap tire fund for research and development of alternatives to the land disposal of tires
- Department of Health and Environmental Control currently has mandatory guidelines for the storage of tires.

SOUTH DAKOTA

- state is revising solid waste regulations. Proposed regulations would include a requirement for general permits for solid waste facilities. Tire processing and storage facilities would be required to have general permit. Rule revisions would also require tires to be cut into at least 4 pieces prior to landfilling.

TENNESSEE

- Act 601 of the State Solid Waste Management Planning Act introduced before the 1990 legislature would ban the disposal of whole tires in landfills and resource recovery facilities effective July 1, 1990.

TEXAS

- Senate Bill 1516 passed in 1989 requires scrap tires to be processed if more than 100 are stored at a single site.

UTAH

- a tire bill introduced in both the House (HB 34) and Senate (SB 5) proposes a per tire graduated tax on all tire sales including new car sales:
  - $1.00/tire up to 14"
  - $1.50/tire 15" to 19"
  - $2.00/tire 19" to 26"
- monies generated from the tax would be deposited in a recycling fund.
- recyclers (end users) can draw up to $20.00/ton per use on products manufactured containing tire derived materials includes tire-derived fuel.
- five year sunset clause for end user incentive.
- fund would be administered through local departments.
- Salt Lake City requires manifest system for scrap tires.

VERMONT

- S 326 a comprehensive solid waste management and recycling bill was introduced. The proposed bill would:
  - ban landfilling of tires effective July 1, 1991
  - require a $10.00/tire disposal fee—deposit fee on vehicle registrations. Fees will be deposited in a special product disposal fund along with similar fees on other recyclables stipulated in the bill
  - require solid waste management districts or municipalities to establish redemption centers
  - establish redemption schedules

VIRGINIA

- waste tire bill passed in 1989 imposes a $.50/tire disposal fee on the sale of new tires effective January 1, 1990. The money collected from the tax will be deposited in a Waste Tire Fund. State hopes to generate $500,000 by July 1, 1990.
- legislation established a Used Tire Managemnet Advisory Committee to make recommendations on scrap tires in the state
- Advisory Committee and Department of Waste Management are currently drafting a used tire management program which would include a state subsidized test burn of tdf in combination with coal, and the development of a network of tire collection centers.

WASHINGTON

- as of October 1, 1989, tire fund was in place. $160,000 in revenue collected as of January, 1990.
- funding sources for tire recycling increased in 1989 per recommendation on the state's waste tire advisory committee. Legislature approved a $1.00/year add-on charge on vehicle registrations.
- April 1, 1989 licensing rules for tire haulers and owners effective. Tire haulers required to pay $250/year to obtain carrier license. Haulers must document delivery of scrap tires under provision of the current scrap tire law.
- Waste Tire Advisory Committee formed in 1990 to develop mechanism for fund dispersal. Comprised of sate and local government officials.

WISCONSIN

- Assembly Bill 481 passed in 1987 established a $2.00/tire fee on vehicle titles effective May 1, 1988. As of June 1, 1989 approximately $2.75 million has been collected.
- in September, 1989, the Department of Natural Resources requested approval to hold hearing on creating NR 555, a rule allowing expenditure of funds collected under provision of the waste tire law (AB 481 to implement a waste tire removal and recovery program.

WEST VIRGINIA

- emergency solid waste regulations approved in November, 1988 have been introduced in the 1990 legislature for approval as permanent rules (Title 47/series 38 Section 4.13.4 Rules and Regulations for Solid Waste Management). Tires are specifically addressed regarding storage and disposal:
  - no more than 1,000 tires can be stored unless they have a permit for storing a large number
  - tires must be split/cut or shredded prior to landfilling; shreds must then be dispersed on the workface of the fill with other wastes
  - alternate burial plans for non-cut or whole tires will be approved if the plan gives adequate assurance that tires will stay buried
  - mobile shredders are not required to have a permit
  - stationary processing facilities must be permitted. Storage at processing facilities is limited to two piles of whole tires and no more than 18 piles of shredded tires (pile size: 200 ft. × 50 ft. × 15 ft.)
  - Division of Waste Management is conducting feasibility study on the purchse of shredder for use in tire pile cleanup

WYOMING

- HB 213 passed amending the Solid Waste Management Act for solid waste storage and treatment facilities:
  - specific provisions for tires (defined as solid waste) to set reasonable amounts for storage of tires at retail stores, collection centers, landfills, etc.
  - established bonding and locations requirement and a permitting system for solid waste facilities
  - limits the accumulation of waste (including tires) prior to disposal ☐

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Corporation of the City of Hami

Memorandum

PL. [illegible]
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ENG. [illegible]
ADMIN.
ANS. BY
FILED BY

TO: Mr. E. M. Gill
Acting Commissioner of Engineering
Attention: Mr. Geoff Aston

YOUR FILE:

FROM: Mr. J. J. Schatz, Acting Secretary
Transport and Environment Committee

OUR FILE:
PHONE: 546-2727

SUBJECT: DESTRUCTION OF THE OZONE LAYER

DATE: 1990 April 4

Attached for your information, please find correspondence from the Mayor of Winnipeg to Mayor Morrow respecting the destruction of the ozone layer.

As requested by the Mayor Morrow, I will be including this item on the agenda of the next Transport and Environment Committee meeting.

Attachment

c.c. Mr. J. G. Pavelka
Director of Public Works

cc. Mr. Joe Schatz, SEcretary - Transport & Environment Committee - from Mayor Bob Morro
April 3rd, 1990 - This item is for the Agenda and I will speak to it. Thanks.

William Norrie, Q.C.
Mayor

Office of the Mayor
Winnipeg Manitoba R3B 1B9 Canada

March 9, 1990

MAYOR
City of Hamilton
City Hall
71 Main St. W.
Hamilton, Ontario
L8N 3T4

MAR 27 1990

Dear Mr. Mayor:

Environmental awareness is growing as we enter the final decade of this century. The destruction of the ozone layer in the stratosphere by chemicals is a serious threat to human health, agriculture and the earth's climate and is a major concern of scientists and governments world-wide. The City of Winnipeg supports the phasing out of ozone depleting chemicals and is acting on this matter.

At its meeting of December 20, 1989, City Council adopted an Executive Policy Committee report on **OZONE DEPLETING SUBSTANCES**.

The recommendations adopted include:

1. *That an Advisory Committee on Ozone Depleting Substances be established to deal with the reduction and elimination of these substances within city facilities and operations;*

2. *That the Law Department be directed to draft a City of Winnipeg Chlorofluorocarbon and Halon by-law;*

3. *That the Task Force report on Chlorofluorocarbons and Halon be made available to other municipalities and organizations.*

Enclosed is a copy of the Task Force report. Hopefully it will be of benefit when you begin taking action to rid our world of ozone depleting substances. We would appreciate your comments on this report and any other additional information you could share with us on this matter. Please direct any correspondence to:

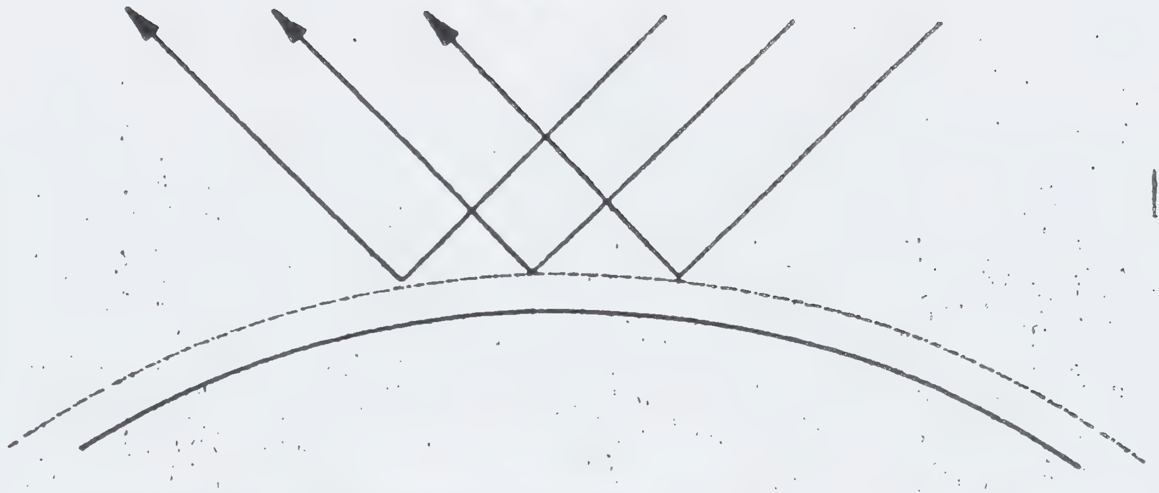
Mr. Brian Gaber, P. Eng, Chairman,
Advisory Committee on Ozone Depleting Substances,
City of Winnipeg, Research and Policy Analysis Branch,
Administration Bldg., 3rd Floor, 510 Main Street,
Winnipeg, Manitoba, R3B 1B9

The solution to this global problem exists locally. Please join us in eliminating ozone depleting substances from our municipalities.

Yours truly,

William Norrie, Q.C.
MAYOR

Encl.



CHLOROFLUOROCARBON AND HALON

TASK FORCE REPORT

CITY OF WINNIPEG

"A REVIEW OF THE CITY OF WINNIPEG FACILITIES AND OPERATIONS
TO DETERMINE WHERE REDUCTION OR ELIMINATION
OF CFCS AND HALONS CAN BE MADE"

JULY 1989

A REVIEW OF THE CITY OF WINNIPEG FACILITIES AND OPERATIONS TO DETERMINE WHERE REDUCTION OR ELIMINATION OF CFCs AND HALONS CAN BE MADE

BY: THE TASK FORCE ON CFCs AND HALONS:

B. Gaber (Chairman), Research & Policy Analysis Branch
C. Kaufmann, Environmental Planning
A. F. Atamanchuk, Health Department
D. Ross, Operations Department
W. J. Boyaniwsky*, Parks & Recreation
H. Haak, Civic Properties
T. J. Kuluk, Waterworks, Waste and Disposal

* succeeded by P. Koziey

July 1989

SUMMARY

Human activities have had such an impact on our planet that we are now changing the balance of gases in the earth's atmosphere. Chemical contamination has reached the stratosphere and is threatening our planet's fragile ozone layer - a layer of gas that protects us from the damaging rays of the sun. The Ozone layer absorbs much of the sun's ultraviolet rays - dangerous radiation which can cause skin cancer, reduce crop yields and damage aquatic life.

> The U.S. Environmental Protection Agency has estimated that an additional 154 million cases of skin cancer and 3.2 million deaths could result before the year 2075 if current global use of Ozone Depleting Substances continues.

In September 1987 an international agreement on Ozone Depleting Substances,The Montreal Protocol, called for a 50 percent reduction in the 1986 levels by 1999 of consumption of five chlorofluorocarbons (CFCs) and a freeze at 1986 consumption levels of three Halons. The target reductionsin this protocol are currently undergoing international review and it is expected amendments will tighten the protocol.

To address this problem at municipal level, The City of Winnipeg established a Task Force to review its own facilities and operations to determine where reduction or elimination of Ozone Depleting Substances can be made.

This report documents the Task Force's findings and recommends a course of action for the City.

A survey of City of Winnipeg facilities and operations revealed that most of the Ozone Depleting Substances that can be reduced or eliminated are in refrigeration and air conditioning equipment as chlorofluorocarbons (CFCs). To a lesser extent, CFCs were found in sterilants, and in solvents. Foam products such as foam insulation contain CFCs but the CFCs are considered to be "banked" or locked in place. Ozone Depleting Substances also were found in fire extinguishers as Halons.

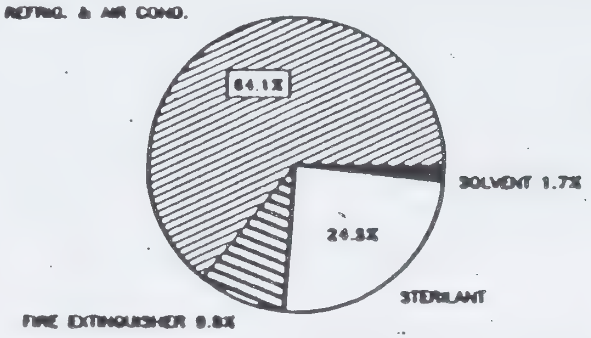


CHART 1 – CFC & HALON DISTRIBUTION (10,155 KG)

Although the City of Winnipeg facilities and operations contain a small fraction of the CFC's in Canada (much less than 1%) this does not mean the City can ignore the problem.

Environment Canada has published "Ozone Depleting Substances Regulation No. 1 (Chlorofluorocarbons)" in the April 22, 1989 Extract Canada Gazette, Part I. These regulations will ensure that Canada complies with the Montreal Protocol through the apportioning of production rights among the producers that were manufacturing CFCs in 1986. The Montreal Protocol calls for a reduction in designated CFC consumption by 1999 to 50% of 1986 levels.

These regulations will create a scarcity of these controlled substances and will induce development of substitutes and increase prices of the controlled substances.

Reducing or eliminating Ozone Depleting Substances found in the City facilities and operations must be viewed as a component of national and global efforts. The City can set an example for other municipalities and industries to follow.

Based on the survey results, literature review and contacts with other levels of government and industry, the Task Force made the following conclusions:

- It is possible to reduce or eliminate Ozone Depleting Substances in use in the City of Winnipeg facilities and operations however in order to be effective the private sector must be regulated through By-laws;
- The Ozone Depletion problem should not be ignored by the City;
- It will take time to make the necessary changes;
- Costs will likely be higher and availability of alternatives could be a problem;
- Energy use will increase;
- Purchasing policy is required;
- Work practise policy is required;
- Disposal policy is required;
- Continued contacts with Province and Federal Government is necessary;
- Demonstration projects with the Province should be initiated;
- An awareness program is required;
- Information should be shared with other municipalities;
- The Government of Canada be urged to phase out Methyl Chloroform and Carbon Tetrachloride.

There are a number of options to reduce the Ozone Depleting Substances used in the City of Winnipeg facilities and operations. These options include using alternative products and chemicals, recycling, conservation through work practices, and new technologies.

In order to accomplish these reductions and contribute to the global reductions of Ozone Depleting Substances the City must commit itself to pursue these options where feasible. These options require changes in policy and procedures and dedicated resources to initiate and ensure the necessary change.

The Task Force recommends that:

1. an Advisory Committee on Ozone Depleting Substances be established as soon as possible to deal with the reduction and elimination of these substances within the City facilities and operations;

2. a City of Winnipeg CFC and Halon Control By-law be created;

3. the Task Force Report be made available to other municipalities and organizations.

TASK FORCE ON CHLOROFLUOROCARBONS AND HALONS

A review of The City of Winnipeg facilities and operations to determine where reduction or elimination of CFCs and Halons can be made.

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1.0 INTRODUCTION

On February 15, 1989 City of Winnipeg Council adopted the following recommendation from the Executive Policy Committee: -

"That The City of Winnipeg commence an immediate review of its own facilities and operations to determine where reduction or elimination of chlorofluorocarbons and halons can be made. The review to be completed in 4 months, should be made available to Councillors and appropriate Standing Committees upon completion."

Subsequently, The Board of Commissioners appointed a Task Force to commence the review.

The Task Force has found it necessary to expand the scope of their mandate to include a City of Winnipeg By-law. During preparation of this report the Task Force determined that in order to effectively reduce or eliminate Chlorofluorocarbons and Halons in the City of Winnipeg facilities and operations it will be necessary to regulate the private sector through By-laws. Most of the City of Winnipeg airconditioning equipment is serviced by outside contractors and unless they are regulated any efforts to reduce these substances within the city would be futile. In addition the ozone depletion problem is a global problem and not limited to City of Winnipeg facilities and operations.

This Task Force Report provides background on the subject and details the results of the review of The City of Winnipeg facilities and operations.

Chlorofluorocarbons (CFCs) are a group of industrial chemicals used in the production of foam products, as refrigerants, solvents, sterilants, and aerosols, and Brominated Fluorocarbons (Halons) used in some fire extinguishers.

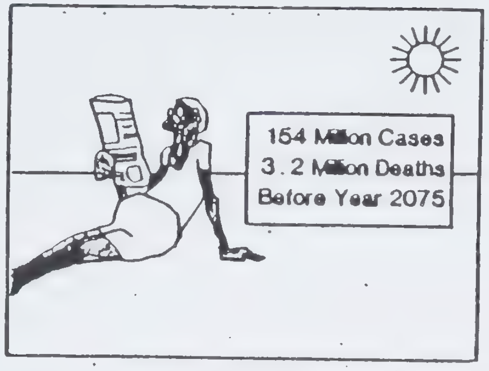
They are benign and inert at ground level but when CFCs and Halon reach the stratosphere, they break down to release chlorine and bromine which causes ozone destruction.

One chlorine atom can destroy as many as 100,000 ozone molecules before it is rendered inactive or removed from the atmosphere.

They are depleting the ozone layer as well as contributing 15% to global warming or "greenhouse" effect.

Appendix A and B contain details on the ozone layer and how CFCs and Halons destroy ozone.

The ozone layer acts as a natural filter, absorbing most of the sun's ultraviolet (UV) rays. Any depletion of the ozone layer, even small changes, results in an increase of UV radiation reaching the earth's surface which will cause serious damage to living tissue, animal or plant.



The U.S. Environmental Protection Agency has estimated that an additional 154 million cases of skin cancer and 3.2 million deaths could result before the year 2075 if current global use of fully halogenated CFCs continues.
Global efforts to address ozone depletion in the stratosphere have been underway since 1981. The Vienna Convention in 1985 for the Protection of the Ozone Layer, developed under the United Nations Environment Program was the "first" for safeguarding the environment and health. The Convention provides the framework for cooperative activities including the exchange of information related to the ozone layer. The Convention provided for the subsequent creation of protocols (free standing treaties) for matters such as control of specific or families of pollutants. The 1987 Montreal Protocol is the first such protocol to deal with "Ozone Depleting Substances".

The Montreal Protocol calls for a 50 percent reduction in the 1986 levels by 1999 of consumption of five chlorofluorocarbons (CFC-11, 12, 113, 114, 115) and a freeze at 1986 consumption levels of three brominated fluorocarbons called Halons (Halon 1211, 1301, 2402). The target reductions in this protocol are currently undergoing international review and it is expected amendments will tighten the protocol.

The Federal Government recently released draft regulations calling for at least an 85 percent reduction of controlled CFCs by no later than 1999.

A World Conference in April 1989 held in Helsinki called for an agreement to phase out the Ozone Depleting Substances listed in the Montreal Protocol as soon as possible, but not later than year 2000 and for that purpose to tighten the Montreal Protocol.

CFCs and Halons differ in the degree to which they destroy ozone, which is referred to as the "ozone depletion potential" (ODP) per kilogram of emissions from each chemical. This measure served as one criteria for deciding which chemicals to regulate under the Montreal Protocol. Table 1 lists chemicals, their ODP and atmospheric lifetime. Of all CFCs, CFC-11 and CFC-12 are the most common, have the strongest potential to deplete ozone and are used as the reference point to calculate ODP factors for other CFC's and similarly structured chemicals, Although the manufacture and use of Halons is very small compared with CFCs, Halons are a serious threat to the Ozone because their ODP (3, 6 and 10) is much greater than that of CFCs. Table 1 below lists the Ozone Depleting Substances and their ODPs.

Table 1 - Ozone Depleting Substances

Chemical	**ODP**	**Atmospheric Lifetime (Years)**
CFC-11	**1.00**	75.0
CFC-12	**1.00**	111.0
CFC-113	**0.80**	90.0
CFC-114	**1.00**	188.0
CFC-115*	**0.60**	380.0
Methyl-chloroform**	**0.10**	6.5
Carbon tetra-chloride**	**1.06**	50.0
Halon-1211	**3.00**	25.0
Halon-1301	**10.00**	110.0
Halon-2402	**6.00**	NA

*** CFC-115 is part of a blend of CFC-502 (CFC-502 is a 51/49 mixture of CFC-115 and HCFC-22)**

****Methyl chloroform and carbon tetrachloride are not included in the protocol.**

The review of The City of Winnipeg facilities and operations and the determination of what can be done to eliminate or reduce CFC and Halons was conducted by the Survey and the Strategy working groups, sub-groups of the Task Force. The Survey group conducted a survey of all City facilities and operations. This survey identified where the problem substances are located, in which equipment they are found and the total quantity and quantities in each piece of equipment. The result of the survey are found in Part 5 of this report. The Strategy group conducted a literature review, contacted federal, provincial and other municipal governments and selected industries.

Options to reduce or eliminate the Ozone Depleting Substances in City of Winnipeg facilities and operations are reported in Part 6. Actions by Government and Industry follow in Part 4.

Based on the survey results and strategies available for reduction of Ozone Depleting Substances, Conclusions (Part 2) and Recommendations (Part 3) were directed specifically to The City of Winnipeg.

Although not included as part of the original Task Force a representative from the Waterworks, Waste and Disposal Department was invited to serve on the Task Force. This was necessary to reduce duplication in the Recycling Study they are presently conducting and the inevitable need to recycle and dispose of these Ozone Depleting Substances.

Further details on Ozone Depleting Substances and Options are available from the publications listed in the bibliography at the end of this report.

2.0 CONCLUSIONS

Based on the survey results, literature review and contacts with other levels of government and industry, the Task Force made the following conclusions:

- It is possible to reduce or eliminate Ozone Depleting Substances in use in the City of Winnipeg facilities and operations however in order to be effective the private sector must be regulated through By-laws;
- The Ozone Depletion problem should not be ignored by the City;
- It will take time to make the necessary changes;
- Costs will likely be higher and availability of alternatives could be a problem;
- Energy use will increase;
- Purchasing policy is required;
- Work practise policy is required;
- Disposal policy is required;
- Continued contacts with Province and Federal Government is necessary;
- Demonstration projects with the Province should be initiated;
- An awareness program is required;
- Information should be shared with other municipalities;
- The Government of Canada should be urged to phase out of Methyl Chloroform and Carbon Tetrachloride.

2.1 Ozone Depleting Substances can be Reduced or Eliminated

Based on the survey results (Part 5) and options available (Part 6) there are several areas in The City of Winnipeg facilities and operations where reduction or elimination of Ozone Depleting Substances can be presently made. The specifics of using those alternatives have to be worked out. Further reductions can be made as substitutes and new technology become available. The areas and availability of the options are listed below. The availability of alternatives is based on Environment Canada's "Report on Options".

1. Rigid Foams

Availability of Alternatives

- Use substitute insulation such as glass fibre or non-urethane foam insulation. This action will send a clear message to industry that foams

with the problem CFC's will no longer be acceptable and that they quickly develop environmentally safe substitutes. In the short term costs will increase for the thicker glass fibre insulation and any required building design changes.	Presently Available
- Use foams made with alternative CFCs or soft CFCs such as HCFC-123, HCFC-141b, HCFC-22 or HFC-134a.	1992
- Use refrigerators that utilize vacuum panel insulation when they become available.	?

2. Flexible Foams

- Use a substitute material for foam in furniture such as natural or synthetic fibrefill.	Presently Available
- Use a high density foam which minimizes the use of CFC-11. This will be more expensive and harder to accept by consumers since it is not as comfortable as soft foam.	Presently Available
- Use of foam blown with water.	Presently Available
- Use of foam blown with alternative CFCs or soft CFC such as HCFC-123 and HCFC-141b	1992

3. Refrigeration and Air Conditioning

- Use either HCFC-22 or nitrogen for field testing.	Presently Available
- Retrofit existing equipment with isolation valves during down time. This will facilitate servicing and reduce refrigerant losses during servicing. Also purge system should not be vented to atmosphere but recovered and recycled.	Presently Available
- Use of high-pressure centrifugal chillers utilizing HCFC-22	Presently Available
- Recovery of refrigerant from refrigerators and air conditioning equipment prior to disposal. This should be done by dealers, service agents and salvagers prior to final disposal. Provincial regulations would be required.	Presently Available
- Use devices to recover, recycle and re-use refrigerant. A portable	

unit could be used in-house to recycle the 241 kg of CFC-12 used in chillers each year. In addition the unit could be used to recover and recycle CFC-22 should any of our central air conditioners, small chillers, de-humidifiers, refrigerators or window air conditions require servicing. Presently most of this equipment is serviced by outside contractors. Fall 1989

- Deal only with those outside contractors who recycle CFC's 1990
- New work practises can be adopted to reduce inadvertent loss of system refrigerant charge. American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) is presently developing workable guidelines to minimize CFC losses due to servicing. Environment Canada has produced a draft "Proposed Code of Good Practice for the Reduction of CFC emissions in Refrigeration and Air Conditioning Systems. 1990
- Use alternative refrigerants for any new units
  HCFC-22
  HCFC-123 1994-1999
  HFC-134a 1994-1999
- Use alternative refrigerant in existing units (drop-in refrigerant) HFC-134a 1994-1999

4. Solvents

- Use alternative solvents such as Freon SMT as an electronic cleaning agent and Freon MCA as a metal cleaning agent. Both will reduce the amount of CFC-113 but are only interim products. The Employee Occupational Safety and Health (E.O.S.H.) Division should be consulted for these and any other alternative solvents to be considered such as trichloroethylene and terpenes. Also water and steam should be considered in some cleaning applications. Presently Available
- Work practices should be examined to determine where waste can be reduced. Government sources indicate that about 50% of solvents are wasted. Recycling is possible and is presently performed to recycle 50-70% of the solvent used as a grease extraction agent. Presently Available
- Use of new non-ozone

depleting substitute products with the same properties of CFC-113.	1995-1999
5. Sterilants	
- Use steam sterilization for medical instruments that do not require gas sterilization.	Presently Available
- For the cheaper surgical equipment use disposable equipment that would normally require gas sterilization.	Presently Available
- Use a 10% ethylene oxide and 90% carbon dioxide mixture for gas sterilization. Because of higher pressures current equipment and lines may have to be upgraded.	Presently Available
- Use the substitute propellant HCFC-134a instead of CFC-12.	1992-93
6. Fire Extinguishers	
- Use alternate portable fire extinguishers instead of the Halon portable extinguishers. There are 42 portable Halon units (144 kgs) used in applications where it may be possible to use an alternate such as dry chemical. Once these existing portable Halon extinguishers have been used up the extinguishers with alternate agents should be used.	Presently Available
- Limit Halon 1301 systems only to computer equipment ("in cabinet" systems) and use alternate agents such as dry chemical in other areas.	Presently Available
- Deal only with those manufacturers who recycle their Halon.	Presently Available
- Use alternate agents for discharge testing of new total flooding systems. HCFC-22, Halon 121 and Sulfur Hexafluoride (SF6) are presently being researched for this use.	1990-92
- Use alternative enclosure leakage testing methods such as fan pressurization and tracer gas techniques.	1992
7. Aerosols	
- Substitute cleaning agents or techniques should be used in the cleaning of electrical/electronic equipment. Products may be available in non-ozone depleting forms such as hand	Presently

pumps and spray bottles. Available

- Use only those aerosols that do not contain CFCs as the propellant except those designated as essential by Environment Canada. 1990

2.2 Ozone Depleting Problem Can Not be Ignored

Although the City of Winnipeg facilities and operations contain a small fraction of the CFC's in Canada (much less than 1%) this does not mean the City can ignore the problem.

Environment Canada has published "Ozone Depleting Substances Regulation No. 1 (Chlorofluorocarbons)" in the April 22, 1989 Extract Canada Gazette, Part I. These regulations will ensure that Canada complies with the Montreal Protocol through the apportioning of production rights among the producers that were manufacturing CFCs in 1986. The Montreal Protocol calls for a reduction in designated CFC consumption by 1999 to 50% of 1986 levels.

These regulations will create a scarcity of these controlled substances and will induce the development of substitutes and increase prices of the controlled substances.

Reducing or eliminating Ozone Depleting Substances found in the City facilities and operations must be viewed as a component of national and global efforts. The City can set an example for other municipalities and industries to follow.

2.3 Timing

The industrialized world is in a transitional process to change over from Ozone Depleting Substances to environmentally safe substances. To do this without incurring major disruptions to industry and users will take time.

2.4 Costs and Availability

There is little doubt that in the next 10 years costs of the Ozone Depleting Substances and alternative replacement substances will be as much as 3 to 5 times higher than at present. Availability of Ozone Depleting Substances and alternative substances could also be a problem. To reduce the impact of these higher costs and lower availability, the City of Winnipeg can reduce or eliminate our dependency by the methods outlined in section 2.1.

2.5 Energy

An evaluation of the long term impact on the refrigeration industry and the development of alternative technologies was recently conducted for the Department of Energy (D.O.E.) in the U.S.A. The evaluation considered four scenarios.

1. Fall Back Position - utilizes the soft HCFC-22, for refrigerants.
2. Worst Case Scenario - use of ammonia and propane for refrigerants if all chlorine containing compounds are banned.
3. Near Drop-In Substitutes - Use of HCFC-123 and HCFC-141b.

4. Advanced Technology - vacuum insulated panels for refrigerators, sterling absorption cycle refrigeration, etc.

The energy impacts varied from -35% for the Advanced Technology up to 60% more for the Worst Case Scenario compared to current refrigeration technology.

In new buildings, thicker insulation will be required for glass fibre and other insulation products to maintain the same thermal resistance as the foam products. Otherwise more energy will be used.

2.6 Purchasing Policy

In order to effect reduction or elimination within the City's Operation in areas where the Ozone Depleting Substances are used, a purchasing policy will be required. Where feasible, the purchasing policy should include the use and preference of alternative substances such as:

- fibreglass insulation instead of polyurethane foam.

- HCFC-22 cooled refrigeration and air conditioning equipment instead of CFC-11 and 12.

- non-halon substances in testing of fire extinguishing systems.

- non-halon portable systems unless for computer or other sensitive electronic/electrical equipment.

Also contracts should be with those contractors that recycle CFCs and Halons and adhere to the new ASHRAE work practise guidelines and/or Environment Canada's Code of Good Practice.

2.7 Work Practice Policy

The City should adopt a work practice policy for all its staff in all departments for adherence to the new ASHRAE work practise guidelines and/or Environment Canada's Code of Good Practice.

2.8 Disposal Policy

The City should adopt a policy for reclaimation of drainable CFC products prior to disposal and enter into discussion with the Provincial and Federal Government regarding ultimate disposal options.

2.9 Provincial and Federal Government Contacts

For purposes of policy development and information on legislation and initiatives, the City should maintain contact with the Province's Department of Environment and Environment Canada.

2.10 Joint Demonstration Project(s)

Interest has already been expressed by the Province's Environment Department for initiating a demonstration CFC recycling project at a location in Winnipeg. The City should support and participate in this project.

2.11 Awareness Program

Literature and other information transfer avenues should be developed on the CFC problem in City of Winnipeg facilities. This information should then be transferred to all staff members to facilitate implementation of the options to reduce or eliminate CFC's eg: The slide show "Ozone Depletion and CFCs - A Technological Challenge" produced by the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) is an excellent slide show to create the awareness and provide basic technical background. The Research Branch has a copy of this slide show.

2.12 Information Transfer

This Task Force Report on CFCs and Halons should be made available to all other municipalities perhaps through the Federation of Canadian Municipalities, and the Manitoba Association of Urban Municipalities and other organizations.

2.13 Methyl Chloroform and Carbon Tetrachloride

The Government of Canada should be urged to consider phase out of Methyl Chloroform and Carbon Tetrachloride which are now not designated controlled substances listed by the Montreal Protocol.

The U.S. Environmental Protection Agency has estimated that these two substances are major contributors to the build up of chlorine in the atmosphere and are considering their phase out. Methyl Chloroform is used as a degreasing agent for metals and electronics equipment parts and Carbon Tetrachloride is used to make CFCs as well as pesticides and dyes.

3.0 RECOMMENDATIONS

The present Task Force members possess technical knowledge and expertise in the Ozone Depletion field through their research for this report and through their professional background. This knowledge should be utilized by the City.

The establishment of a central Advisory Committee is more efficient than developing the pre-requisite expertise in each department.

1. **An Advisory Committee on Ozone Depleting Substances should be established as soon as possible to deal with the reduction and elimination of these Substances within the City facilities and operations. Members of the Committee would be drawn from the Task Force and other interested personnel and be charged with the following responsibilities:**

    a) to continue to acquire and disseminate technical knowledge in all matters of Ozone Depleting Substances:

    b) to liaise with the Province of Manitoba and Government of Canada and monitor progress with laws and regulations pertaining to Ozone Depleting Substances;

    c) to monitor industrial - technical progress in the development of substitute substances and technologies;

    d) to recommend specific action for Civic Departments to reduce or eliminate Ozone Depleting Substances in their facilities and operations;

    e) to review and recommend changes in purchasing policy and operating and maintenance procedures in keeping with developing technology;

    f) to liaise with industry and business with the goal to reduce CFC and Halon emissions in their process including the implementation of City By-laws;

    g) to identify resource requirements and associated costs to carry out the above functions.

2. **A City of Winnipeg CFC and Halon Control By-law should be created.**

3. **The Task Force report should be made available to other municipalities and organizations.**

4.0 ACTION BY GOVERNMENT & INDUSTRY

4.1 Government

Toronto

On April 6, 1989 The City of Toronto council passed By-law 230-89, "To prohibit and regulate the manufacture, sale, distribution, use and disposal of certain products, material, and equipment containing or manufactured with chlorofluorocarbons and halons". Sections of the By-law ARE scheduled to come into force in seven months after the date of passing of the By-law.

Ontario Government

The Ontario government is planning to introduce legislation to have all thermal insulation containing CFCs removed from the market by July 1990.

Other Provinces

Legislation has also been recently drafted in British Columbia and Nova Scotia.

Canadian Government

National Research Council

The National Research Council Institute for Research in Construction (IRC) is participating in a cooperative research project with industry on insulation containing alternative gases.

By September 1989, a comparative investigation is expected to be complete on the properties of several foam products containing alternative blowing agents.

Environment Canada

Regulations

Environment Canada has published "Ozone Depleting Substances Regulation No. 1 (Chlorofluorocarbons)" in the April 22, 1989 Extract Canada Gazette, Part I. These regulations will ensure that Canada complies with the Montreal Protocol through the apportioning of production rights among the producers that were manufacturing CFCs in 1986. The Montreal Protocol calls for a reduction in designated CFC consumption by 1999 to 50% of 1986 levels.

These regulations will create a scarcity of these controlled substances and will induce development of substitutes and increase prices of the controlled substances.

The Federal Government will likely regulate aerosols by January 1, 1990. The regulation will state that no aerosols shall use CFC products except those deemed essential such as for medicinal and pharmaceutical use.

Codes

As part of their action program to reduce CFC emissions by major CFC user industries, Environment Canada has prepared a draft code "Proposed Code of Good Practice for the Reduction of CFC Emissions in Refrigeration and Air Conditioning Systems". Environment Canada intends that this Code be adopted in agreement with the relevant industrial associations and implemented by the industry in general. The Code is based largely on a similar document published by the Commission of European Communities.

The Code is intended to cover all refrigeration systems within residential, commercial and industrial refrigeration, heat pumps, and air conditioning as well as mobile air conditioning.

The Code includes sections on servicing; usage; recovery, reuse and disposal of refrigerants; handling and storage of refrigerants; disposal of equipment containing CFCs; training of personnel; and SAE proposed standards.

Options Report

Environment Canada has published a report "Preserving the Ozone Layer - A Step Beyond the Montreal Protocol" in April 1989. This report on options for meeting Canada's objective to completely eliminate emissions of controlled Ozone Depleting Substances within the next ten years significantly accelerates the Montreal Protocol timetable. This report is part of the regulation development process and the City of Winnipeg Task Force supplied comments on it for selection of the best options.

Most of the options to reduce or eliminate the controlled CFC and Halons recommended by the Task Force are based on this options report.

Manitoba

Representatives of the Task Force met with the Director of the Planning, Research and Evaluation Branch and the Recycling Coordinator of the Provincial Department of Environment to discuss what actions the Province is planning.

The Province is in the development phase of addressing the CFC problems and are investigating four areas:

- National Coordination
- Manitoba Information
- Restricting CFC Use
- Capture and Recycle

They are examining restrictions consistent with what Environment Canada are considering and are preparing legislation to be tabled in the fall 89 session of the legislature. A national working group on federal-provincial control strategies for CFC's and Halons has been established at the request of the Canadian Council of Ministers of the Environment.

They indicated a willingness to work together with the City particularly on a demonstration project to capture and recycle CFCs.

The Manager of System Development of the Manitoba Hazardous Waste Management Corporation (MHWMC) addressed the Task Force on CFCs and Halons. The MHWMC are investigating the requirements of handling CFCs and will most likely address refrigeration and air conditioning first. However, the Province has not yet directed MHWMC to handle CFC as a hazardous waste. CFCs will be much cheaper to handle as a recyclable good rather than a hazardous waste. Transportation costs could double if CFCs are transported under the Transportation of Dangerous Goods Act. Incineration of CFCs may be possible although there could be hazardous by-products such as fluoride.

United States

The Environmental Protection Agency's (EPA's) Advanced Notice of Proposed Rulemaking (ANPR) on the "Protection of Stratosphere Ozone" is proposing possible next steps to the Montreal Protocol. Additional restrictive measures on the targeted CFCs would be a result of scientific information developed since the signing of the Protocol. The ANPR may advance the Protocol timetable in the U.S. to an 85 to 95% cutback within a 10 year period.

Several states have already introduced legislation on CFCs, including Connecticut, Massachusetts, Michigan, Vermont, Oregon, and New York. Proposed legislation in Oregon went so far as to "outlaw" CFCs in the state.

A bill before Congress now will accelerate the timetable even further. The "Gore Bill" calls for the total prohibition of production and release of CFC-11, 12 and 113 by 1996 (the Montreal Protocol called for a 50% reduction by 1998).

Also the bill included prohibition of a secondary list of regulated chemicals CFC-114, 115 along with HCFC-22 by the year 2000. The EPA view HCFC-22 as part of the solution and it was not included in the Montreal Protocol. Public hearings, debate, deliberation, negotiations and compromise are expected to take place prior to any federal actions becoming complete.

4.2 Industry

Copeland

Copeland, a major manufacturer of refrigeration compressors is developing 45 new compressor models and expanding HCFC-22 application ranges to provide replacements for their entire CFC-12 product offering. However, in the short term, they are still recommending the use of CFC-502 for low temperature refrigeration. They are conducting research into methods of using HCFC-22 in the low temperature range.

Dupont

Dupont, a major manufacturer of chemicals including CFCs, is presently developing new chemicals for both new and existing equipment. These alternative fluorocarbon chemicals include HFC-134a, HCFC-141b, HCFC-123 and HCFC-124 and could be used to replace CFC-11, and 12 as refrigerants and blowing agents for foam production.

Toxicity testing by 15 CFC producers is underway and could be finished by 1992-93.

Dupont has also introduced Freon SMT a new interim cleaning agent for the electronics industry. Freon SMT reduces the amount of CFC-113 in cleaning machines using solvent by approximately 25%. They also introduced Freon MCA a metal cleaning agent that will reduce the amount of CFC-113 in cleaning machines by approximately 37%.

Dupont is also evaluating potential candidates to replace Halon 1301.

National Fire Protection Research Foundation (NFPA)

The NFPA Research Foundation is analyzing alternatives to Halon 1301 total flooding system discharge tests and guidelines for measuring and correcting Halon 1301 leaks.

American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)

ASHRAE, a widely recognized professional technical organization that develops industry guidelines, is presently developing workable guidelines to minimize inadvertent losses of CFCs during manufacture, installation, service and disposal of refrigeration and air conditioning equipment. These guidelines should be released in draft form in July 1989. ASHRAE has produced a position paper entitled "Possible Environmental Effects of Chlorofluorocarbons". Along with the guidelines mentioned above, ASHRAE will encourage research, allocate research funds for alternatives and reclaimation, encourage improved designs and communicate emerging opportunities for technology transfer and reduction of CFC emissions.

Recycling Industries

Local and national recycling industries are showing interest in entering the CFC reclaimation and recycling field as well as storage and environmentally safe disposal methods. At present, they are waiting Federal and Provincial guidelines.

5.0 CITY OF WINNIPEG SURVEY RESULTS

A survey of City of Winnipeg facilities and operations was conducted to determine the location and quantity of Ozone Depleting Substances. A copy of the survey sheet "Inventory of Equipment and Material Containing CFC's or Halons" is included Appendix C. The computer printout of the Inventory is found in Appendix D.

Foam products were not included on the survey sheet, however the quantity of foam in buildings (as insulation and furniture) and in vehicles (as seats) was estimated.

Although the survey sheets lists aerosols it was decided to exclude them. 95% of all aerosol products do not contain CFC's and the remaining 5% is a very small portion of the total amount of ozone depleting substances. Furthermore, they will be banned by January 1, 1990 by the Federal Government.

Rented or leased appliances (drink machines, vending machines, etc.) and vehicles containing ozone depleting substances were eliminated from the survey.

The Employee Occupational Safety and Health Division through the Work Place Hazardous Materials Information System (WHIMIS) is developing an inventory of hazardous substances which will include some of the Ozone Depleting Substances such as solvents, sterilants and containers of refrigerants. The Purchasing Department has just developed an inventory of all portable fire extinguishers including the portable Halon extinguishers for the purpose of obtaining a service contract (including replacement of some fire extinguishers) for all departments. A three year contract is expected to be awarded in early 1990.

There are six major categories of products that use CFC's and Halons and account for most ozone depleting emissions. They include rigid (closed cell) and flexible (open cell) foams, refrigeration and air conditioners (automobile, window and chillers), solvents, sterilants and fire extinguishers. Each utilizes different CFCs and halons for different purposes: either to cushion, insulate, refrigerate, air condition or clean.

Chart 1 below shows the overall distribution of CFCs and halons among applications in the City of Winnipeg.

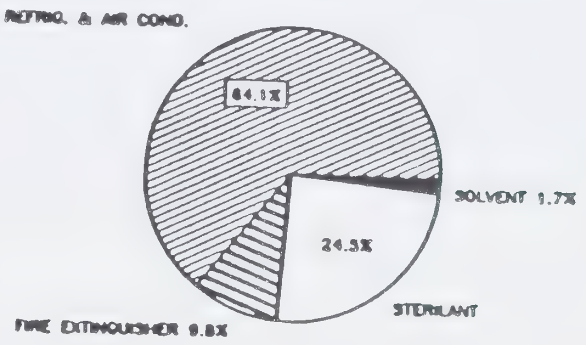


CHART 1 - CFC & HALON DISTRIBUTION (10,155 KG)

Foams have been placed on a separate chart (Chart 2) since they are a larger quantity by volume and of different densities. Also, flexible foams contain very little CFC.

Total volumes of foam consist of non-CFC solids and CFC filled voids. The actual weights of CFC in the voids has not been calculated.

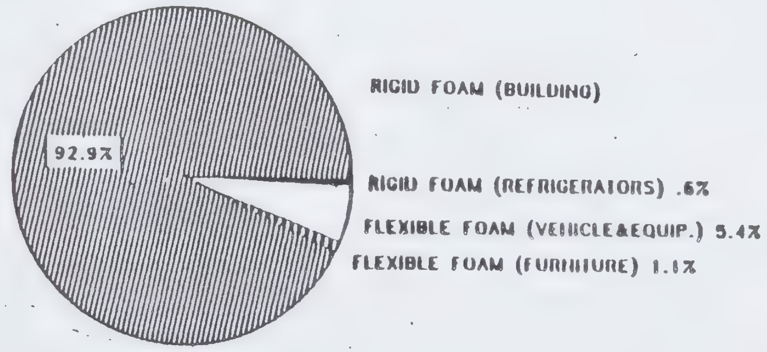


CHART 2 – RIGID & FLEXIBLE FOAMS DISTRIBUTION (25,830 CUBIC METER)

Table 2 below lists the six major product categories, the CFCs and Halons they use and the total quantity (kg's) from the survey.

TABLE 2

MAJOR SOURCES AND QUANTITIES (kgs) OF CFCs AND HALONS

CITY OF WINNIPEG

	Chlorofluorocarbons (CFC)						Halons	
	11	12	22[2]	113	500[2]	502[1]	1211	1301
1. RIGID FOAMS[3]	x	x	x					
2. FLEXIBLE FOAMS[3]	x							
3. REFRIGERATION AND AIR COND.	1962	1102	3053		392	1		
4. SOLVENTS				170				
5. STERILANTS		2488						
6. FIRE EXTINGUISHERS							144	847
TOTALS (kgs) (Excluding Foams)	1962	3590	3053	170	392	1	144	847

Notes:

[1] CFC-502 is a 51/49 blend of CFC-115 and HCFC-22

[2] HCFC-22 and CFC-500 are not included in the Protocol

[3] Foams quantity are in volumes see sections 5.1 and 5.2.

5.1 Rigid Foams (Closed Cell)

Rigid foams were not included in the survey, however estimates were made. Most of the rigid foams are used as insulation in buildings and refrigerators.

The CFCs used as blowing agents to produce foam include CFC-11, CFC-12 and CFC-113. Very little CFC is emitted during production of rigid foams. The insulating properties of the foam are based on trapping as many CFC gas bubbles as possible in the product. These CFC's are referred to as being "banked".

Based on the number of buildings with flat roofs, their area, etc., the amount of rigid foam was estimated to be 24,000 cubic meters.

The amount of CFCs in the insulation of 517 refrigerators is approximately 150 cubic meters.

5.2 Flexible Foams (Open Cell)

Flexible foams were not included in the survey, however estimates were made. Most of the flexible foams are used in office furnishings and vehicle seats. No inventory of furnishings was available.

Most of the CFC-11 used to produce flexible foam products are released at the manufacturing plant and there is very little "banked" in the product.

Based on the number of staff and the amount of foam in typical chairs the amount of flexible foam in office furnishings was estimated at 280 cubic meters.

The estimate of flexible foam in City owned vehicles and equipment is 1,400 cubic meters.

5.3 Refrigeration and Air Conditioning

As shown on Chart 1, refrigeration and air conditioning account for approximately 2/3 of all Ozone Depleting Substances excluding rigid foams, found in the City of Winnipeg.

Table 3 below lists the three major categories, ten product groups and the total quantity (kgs) of the CFCs found in refrigeration and air conditioning equipment.

TABLE 3

REFRIGERATION AND AIR CONDITIONING SOURCES AND QUANTITIES (kg) OF CFCs
CITY OF WINNIPEG

	CHLOROFLUOROCARBONS (CFC)				
	11	12	22	500	502
1. COMMERCIAL REFRIGERATION AND AIR CONDITIONING					
REFRIGERATED CASES		16			
CENTRAL AIR CONDITIONING		195	1737	14	
CHILLERS	1656	274	82	363	
DEHUMIDIFIERS		19	2		
HEAT PUMPS			881		
CONTAINERS	305	241	184	14	
WATER COOLERS		18	0	1	

	11	12	22	500	502
2. RESIDENTIAL REFRIGERATION AND AIR CONDITIONING					
REFRIGERATORS	1	157	11		1
WINDOW AIR CONDITIONERS		17	156		
3. VEHICLE AIR CONDITIONING		165			
TOTALS (kgs)	1962	1102	3053	392	1

As shown on Chart 3, about half of the CFC used for refrigeration and air conditioning in the City of Winnipeg are HCFC-22. HCFC-22 chlorofluorocarbon contains hydrogen making it less persistent in the environment. This CFC is called a soft chemical because its ozone depletion potential (ODP) is 0.05 and it has an atmospheric lifetime of 20 years. HCFC-22 is considered part of the solution since it can act as a "bridge" until new products are developed. CFC-500 is not included in the Montreal Protocol and CFC-502 is a mixture of 51/49 CFC-115 and HCFC-22.

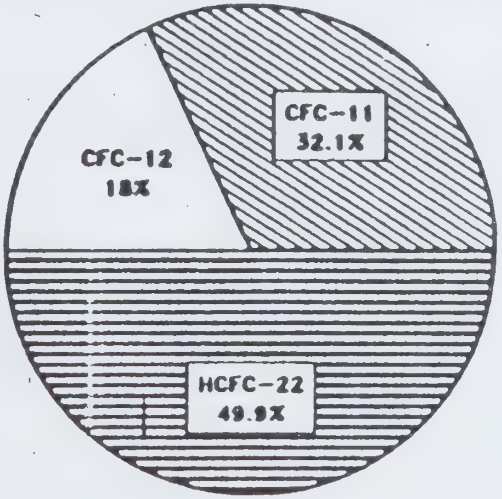


CHART 3 – REFRIG. & AIR COND. CFC DISTRIBUTION (6115 KG)

The remaining CFC's used for refrigeration and air conditioning are the so called hard chemicals CFC-11 and CFC-12 with ODP of 1.0 and atmospheric lives of 75 and 111 years respectively.

As shown on Chart 4, all of CFC-11 is used in chillers or stored in containers which are used for recharging and testing chillers. The three chillers that use CFC-11 are located in City Hall, the Public Safety Building and the Centennial Library.

In addition, 0.57 kg of CFC-11 is used in a refrigerator by Operations Department District No. 2.

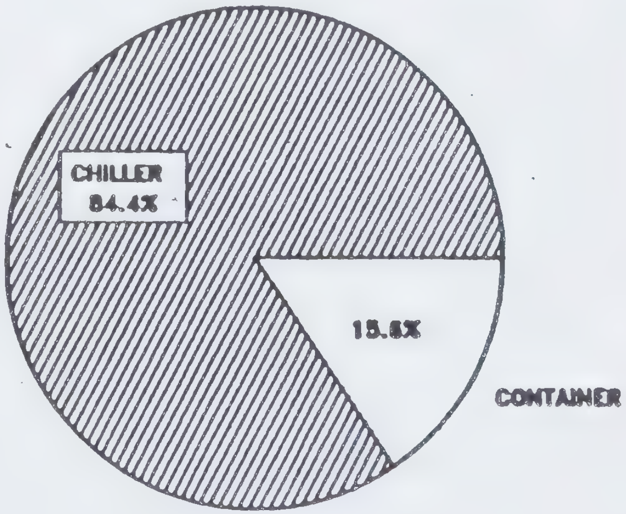


CHART 4–REFRIG.&AIR COND.CFC-11 DISTRIBUTION(1961 KG)

As shown on Chart 5, CFC-12 is used in a variety of applications. Most of it however occurs in four areas:

46.8% - Chillers and Containers used to recharge and test chillers
17.7% - Commercial Central Air Conditioners
14.2% - Residential Refrigerators
15 % - Vehicle Air Conditioners

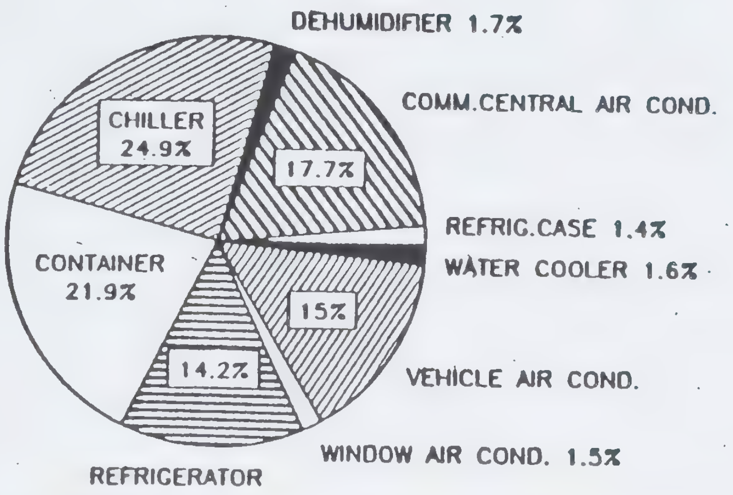


CHART 5-REFRIG.&AIR COND.CFC-12 DISTRIBUTION(1102 KG)

As shown on Chart 6, HCFC-22 is mostly used in commercial central air conditioning and heat pumps.

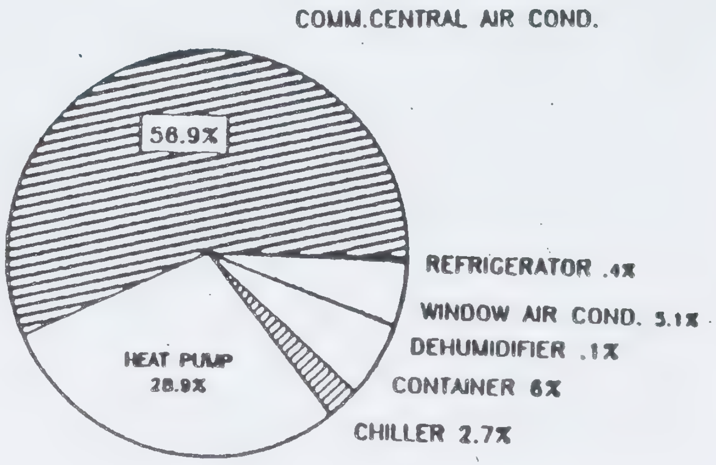


CHART 6-REFRIG.&AIR. COND.HCFC-22 DISTRIBUTION(3053 KG)

5.3.1. Commercial Refrigeration and Air Conditioning

Refrigerated Cases (Total 16 kg of CFC-12) A total 21 refrigerated cases using CFC-12 for a total weight of 16 Kg was determined from the survey. Refrigerated cases are used as a stand-up or upright coolers for cooling milk or drinks. There are likely many more cases which are not included in the survey since they are vendor owned.

Central Air Conditioning (Total 1932 kg of CFC-12 and HCFC-22)
A total of 18 central air conditioning units using CFC-12 (195 kg) and 217 units using HCFC-22 (1737 kg) were determined from the survey. These units are used mainly to cool offices and computer equipment areas and can consist of roof mounted, air cooled, floor mounted water cooled or split air conditioning units. In addition, if community centres are included then an additional 700 kg of mostly HCFC-22 are estimated for the 90 community centres.

Chillers (Total 2012 kg of CFC-11, CFC-12 and HCFC-22)
A total of 3 chillers using CFC-11 (1656 kg), 4 using CFC-12 (274 kg) and 3 using CFC-22 (82 kg) were determined from the survey.

These units are used mainly to cool large buildings and are either mounted in the basement or in the penthouse. The largest unit being the Carrier chiller CFC-11 (816 kg) used to cool City Hall.

Dehumidifiers (Total 21 kg of CFC-12 and HCFC-22)
A total of 25 dehumidifiers using CFC-12 (19 kg) and 2 using HCFC-22 (2.32 kg) were determined from the survey. These units are used to condense moisture out of the air in pneumatic control lines in larger buildings. They are sometimes referred to as "refrigerated air dryers". They are also used in ice arenas to dehumidify during ice making.

Heat Pumps (Total 881 kg of HCFC-22)
A total of 31 heat pumps using HCFC-22 (881 kg) were determined from the survey. Most of these units are used in space heating application, however at least three indoor ice arenas use HCFC-22 ice plants.

Water Coolers (Total 19 kg of CFC-12 and HCFC-22 and CFC-500)
A total of 77 water coolers using CFC-12 (18 kg), 2 using HCFC-22 (0.41 kg), and 4 using CFC-500 (0.54 kg) were determined from the survey. A water cooler is a refrigerated unit that is used to cool drinking water in offices and other buildings.

Containers (Total 730 kg of CFC-11, CFC-12 and HCFC-22)
A total of 5 containers of CFC-11 (305 kg), 7 of CFC-12 (241 kg) and 8 of CFC-22 (184 kg) was determined from the survey. These refrigerants are used by service staff in Civic Properties, Winnipeg Hydro and Municipal Hospital for recharging, testing and filling some of the larger chillers.

5.3.2 Residential Refrigeration and Air Conditioning

Refrigeration (Total 170 kg of CFC-11, CFC-12, HCFC-22, CFC-502 and CFC-717)
A total of 2 refrigerators using CFC-11 (0.57 kg), 515 using CFC-12 (157 kg), 6 using HCFC-22 (11 kg) one using CFC-502 (0.51 kg) and one using CFC-717 (0.28) were determined from the survey. CFC-717 is Ammonia and CFC-502 (ODP=0.33) is a 51/49 mixture of CFC-115 (ODP=0.6) and HCFC-22 (ODP=0.05).

These units are used for refrigerators, freezers, ice machines, slush machines, and incubators.

Fountain drink dispensers (CFC-12) found mainly in community centres were not included in the survey since they are vendor owned.

Window Air Conditioners (Total of 156 kg of HCFC-22)
A total of 240 of window air conditioners using HCFC-22 (156 kg) were determined from the survey. These window air conditioners vary in size from 5,000 BTU/hr to 25,000 BTU/hr (2 tons of cooling).

5.3.3. Vehicle Air Conditioners

A total of 106 vehicle air conditioners using CFC-12 (165 kg) were determined from the survey. The air conditioning units are installed in ambulances, police cars, meter van, landfill compactors and tractors, and miscellaneous vehicles. The air conditioners in these vehicles are serviced by outside contractors. Other vehicles that the City leases or rents may contain air conditioning units however these were not included in the survey.

5.3.4. Annual Usage of CFCs for Charging or Servicing

Together, the commercial, residential and vehicle sectors accounted for 7.5 kilotonnes or 36 per cent of the total CFC usage in Canada in 1987 (Environment Canada, April 1989).

Environment Canada estimate that two thirds of that amount is loaded into the equipment by service personnel either as initial charges (large installation) or to replenish CFC leaked or vented to the atmosphere. In the United States over 80% of refrigerating demand is consumed in the aftermarket for recharging (Copeland, January 1989).

In The City of Winnipeg, the quantity of refrigerant contained in our equipment from the survey results was estimated at 3064 kg (CFC-11, CFC-12 and CFC-502). We use 546 kg (in containers) of CFC-11 and CFC-12 each year to service our equipment in-house. Much more is used however since most of our equipment is serviced by outside contractors. Only Civic Properties and Winnipeg Hydro each have one refrigeration mechanic to service, refill or recharge some of the larger chillers (510 Main Street, 1315 Notre Dame, etc.)

5.4 Solvents

As shown on Chart 1 solvents account for 1.7% of all Ozone Depleting Substances excluding rigid foams found in The City of Winnipeg.

Most of the 170 kg of CFC-113 solvent is used by the Waterworks, Waste and Disposal Lab Services Division as a grease extractor agent. The Waterworks Department presently recycles between 50 to 70% of the solvent (140 kg total) they use for grease extraction.

5.5 Sterilants

As shown on Chart 1, sterilants account for 24.2% of all Ozone Depleting Substances, excluding rigid foams, found in the City of Winnipeg.

A total of 52 containers using a sterilant mixture of 12% Ethylene Oxide and 88% CFC-12 for a total weight of 2827 kg were determined from the survey. This CFC was found in only one location; Central Sterilization Room of King George Hospital.

The amount of CFC-12 in this solution is 2488 kg (88% of 2827 kg).

5.6 Fire Extinguishers

As shown on Chart 1, fire extinguishers account for only 9.6% of all Ozone Depleting Substances, excluding rigid foams, found in the City of Winnipeg.

A total of 42 portable units containing the Bromo-fluorocarbon (Halon) H-1211 (144 kg) and 10 total flood (fixed units) containing H-1301 (847 kg) were determined from the survey.

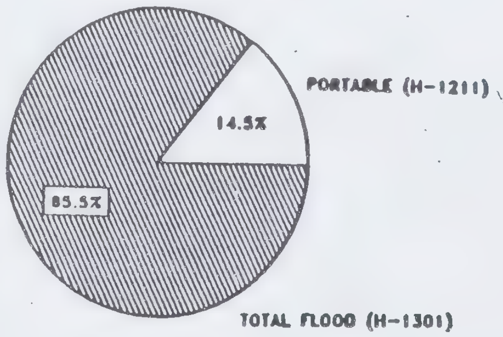


CHART 7–FIRE EXTINGUISHER HALON DISTRIBUTION(991 KG)

The portable units are used in a variety of locations such as in waterworks pumping stations, computer rooms, police training centre, waterworks lab, St. Vital park, on one truck, control rooms, offices, mechanical rooms, sewage treatment plant, etc.

The total flood units are used mainly in computer rooms, archives and two hydro substations.

6.0 OPTIONS TO REDUCE OR ELIMINATE

Options described below basically follow Environment Canada's Report on Options "Preserving the Ozone Layer: A Step Beyond" - April 1989 and where required augmented by other information to address the issue more specific to the City of Winnipeg.

6.1 Rigid Foams

Rigid polyurethane, polystyrene and phenolic foams are produced using CFC-11, CFC-12 or CFC-113 as blowing agents. These types of foams have gained popularity due largely to the favourable economics of insulating with low density foam in buildings, refrigerators, etc.

Very little of the CFCs is emitted during production and its insulating properties are based on trapping as much CFC as possible in the product.

The City of Winnipeg is a "User" and not a "producer" of these foams. It is extremely expensive and difficult to eliminate our present inventory of rigid foam since it would mean replacing 500 refrigerators and ripping apart roofs and walls of many buildings.

To freeze and reduce future use of foam products containing the ozone depleting CFCs in rigid insulation, the following options are available:

1. Use of Alternative Insulation in New or Retrofitted Buildings

A variety of insulation products compete in the marketplace with R-value per dollar as the primary factor influencing sales. Mineral (rock, slag or glass) is the principal alternative to CFC blown rigid foams but in many applications building design changes would be required since foam products have a higher thermal resistance (RSI or R-Value).

For example, a roof insulated with glass fibre instead of rigid foam like polyurethane would have to be about 30% thicker to achieve the same thermal resistance value. For a thermal resistance of 7.04 RSI (R40) the thickness of insulation would be 18cm (7 in.) for the foam and 25cm (10 in.) for the glassfibre.

Cellulose fibre insulation is a good alternative product for sprayed, blown or poured wall and ceiling insulation. Although its thermal resistance per unit thickness is less than foam, it can be applied in thicker quantities to achieve the same insulation level.

An alternate to foam wall sheathing is the use of fibreglass, fibreboard, plywood, gypsum, foil faced laminated board and asphalt board.

Fibreglass or non-urethane foams made without CFC's, supplemented by drywall for fire protection is an alternative to rigid foams for insulating basement walls.

2. Use of Foam Blown with Alternative CFCs

In rigid polyurethane foam, some "soft" CFCs namely HCFC-123 and HCFC-141b are the most likely chemical substitutes for the use of CFC-11. The CFC-12 that is used primarily for frothing may be replaced by HCFC-22 or HFC-134a.

A joint testing program of the Society of the Plastics Industry of Canada and the National Research Council is currently in progress to assess how HCFC-123 and HCFC-141b can be introduced as substitute blowing agents. Commercial quantities may not be available until 1992.

3. New Technology for Refrigerator Insulation

A new technology for refrigerator insulation is "evacuated" or "vacuum" panel insulation. This would eliminate the need for CFC and provide a higher resistance to heat. The Solar Energy Research Institute in Golden, Colorado and the Oak Ridge National Laboratory are presently researching this new technology.

4. Disposal

The CFCs in the rigid foams are "banked" and will not be released unless the foam is broken up. Normally foam removed from buildings are partly broken on site and further broken at landfill with the subsequent release of some CFC's.

The foam insulation in refrigerators is also banked until some of the CFCs are released when the refrigerator is shredded for scrap metal.

To remove rigid foam from buildings and refrigerators without significant breakage of the foam and to store the foam until a suitable disposal method is available will be very expensive and technically difficult.

The trend appears to be not for change but to continue to dispose of these products as we do now. Alternative products and the new rigid foams, when they become available, should be used where possible.

6.2 Flexible Foams

Flexible foams are used in furniture, vehicle seats, carpet underlay and other cushioning material.

Flexible foams are produced using CFC-11 as an auxiliary blowing agent in some applications. Many foams are blown without using an auxiliary blowing agent. In the production of flexible foams, most of the CFC emissions are "prompt"(i.e. they are released quickly within a few hours or days after manufacture).

To reduce or eliminate flexible foams, products produced with the Ozone depleting CFC's the following options are available:

1. Use of Foam Blown with Alternative CFCs or No CFCs

CFC-11 is used only as an auxiliary blowing agent, the primary blowing agent is carbon dioxide. Thirty-five percent of polyurethane foam is blown with CFC-11. Increasing the use of water as a blowing agent, conversion to modified polyols and use of alternative blowing agents such as HCFC-123 or HCFC-141b (commercial quantities may not be available until 1992) are all options.

2. Use of Alternative Products

Use of substitute materials such as natural and synthetic fibrefill is another option. Also the use of high density foam which minimizes the use of CFC-11 is an option except that it will be more expensive and will be harder to accept by consumers since it is not as comfortable as soft foam.

6.3 Refrigeration and Air Conditioning

Refrigeration and air conditioning are used in three major sectors:

- Commercial refrigeration and air conditioning
- Residential refrigeration and air conditioning
- Automobile air conditioning

6.3.1 Commercial Refrigeration and Air Conditioning

The primary CFCs used in commercial refrigeration and air conditioning are:

Substance	ODP	Equipment
CFC-11	1.0	chillers
CFC-12	1.0	air conditioners, chillers, dehumidifiers
CFC-115	0.6	freezers

To reduce or eliminate the CFC's in this area the following options are available:

1. Use of Alternative Refrigerants in New Units

The refrigeration industry is working closely with chemical suppliers in the development and testing of two prime alternative refrigerants:
HCFC-123 (ODP=0.02) to replace CFC-11 and

HFC-134a (ODP=0.00) to replace CFC-12

Tests are presently being performed on these alternatives and once they have passed all tests it is expected that products with these new substances will be available in the next 5 to 10 years. Commercial quantities of HFC-134A will be available to users by late 1992. DuPont projects a price of 3 to 5 times that of CFC-12.

In the meantime, industry, whenever technically and economically possible are switching new units to the so called "bridging substances" (substances that can bridge the gap between now and when the new substances are available).

HCFC-22 (ODP = 0.05) and
CFC-502 (ODP = 0.33)

CFC-502 is a 51/44 mixture of CFC-115 and HCFC-22 and can be used for capacities higher than 1000 tons and low to medium temperature applications (temperatures down to -40^{0}C at the evaporator inlet). Although not included in the Montreal Protocol this substance is likely to be phased out in the future because of its 0.33 ODP. HCFC-22 can be used for capacities less than 1000 tons and medium to high temperature applications (temperatures -10^{0}C and up at the evaporator inlet). This substance is viewed as part of the long term solution because of its low ODP (0.05). HCFC-22 provides excellent performance for medium and high temperature refrigeration. However, its use in low temperature applications results in lower performance, higher cost and reduced reliability. Work is being done by Copeland for low temperature HCFC-22 applications and a breakthrough is anticipated.

Copeland Corporation, a major compressor manufacturer, is developing 45 new compressor models and expanding HCFC-22 application ranges to provide replacements for their entire CFC-12 product line. These new products are expected in the spring of 1989 (see Section 5.0 for details).

2. Use of Alternative Refrigerants in Existing Units

Switching refrigerants in existing systems (such as switching CFC-12 systems to CFC-502 or HCFC-22 and switching CFC-502 systems to CFC-22) in most cases will strongly affect operation of major system components such as compressor, controls, expansion valves, pressure actuated valves, controls, etc. Also major system piping changes will be required, system efficiency will be reduced, new leaks can develop because of higher operating pressures and the capacity of the system may change substantially.

HFC-134A has been called the "drop-in" replacement to CFC-12 and could be a suitable replacement once sufficient quantities are produced and testing is completed. According to Copeland, sufficient evidence exists to indicate that

HFC-134A may be an attractive replacement for CFC-12. At present, it causes a slightly lower performance and is incompatible with presently used lubricants that flow within a typical refrigerant system. Theoretically, a loss in capacity from 2 to 12% and loss in efficiency from 0.6 to 5% could be expected. Slightly larger compressors and heat exchangers will be required to compensate for these losses.

3. Recover, Recycle and Re-Use Refrigerant

Recovery and recycling of used refrigerant is feasible but requires a number of conditions to be effective such as:

- refrigeration units that are designed to allow safe and controlled removal of CFC;
- trained and motivated maintenance personnel;
- a network of qualified recyclers;
- recognized product quality standards for recycled CFCs;
- regulations would be required to ensure compliance by dealers and service agents and salvagers;
- it will only be cost effective if the price of recovered refrigerant is close to, or under the cost of virgin refrigerant.

Recovery units are now available that are designed for the commercial, industrial, residential and domestic refrigeration and air conditioning industry. One manufacturer produces a recycling station that is portable and can handle 100 lbs of CFC-12, HCFC-22, CFC-500 or CFC-502 refrigerant at any one time. The station is available now and cost is estimated to be $5,700. Unofficial tests conducted by one manufacturer for automobile air conditioners indicated that recycled CFC-12 refrigerant had a lower moisture content, mineral oil based lubricant and acid content than EPA recycling standards and new CFC-12 refrigerant.

Manufacturers of refrigeration equipment may be reluctant to honour their equipment warranties if recycled refrigerant is used. They may be willing to test the recycled refrigerant to ensure it will not damage their equipment.

Alternatively, the refrigerant can be recovered and sent to companies such as DuPont for purification.

4. Use of Alternative Leak Test Gases

Based on industry practices today, prohibition of the use of CFCs for leak testing is quite feasible. The refrigeration industry is currently installing leak testing facilities which use helium as a leak test gas for smaller size units. Helium testing of large units will be available in the future, in the meantime, HCFC-22 is replacing CFC-12 for leak testing.

For testing of field installation, contract personnel now use either HCFC-22 or nitrogen.

5. Installation of Isolation Valves

Isolation valves can easily be incorporated into new designs to allow servicing of equipment without venting all the refrigerant. Existing equipment can be retrofitted with isolation valves when refrigerant replacement is required.

6. Use of High-Pressure Centrifugal Chillers that Use HCFC-22

This type of unit is commercially available up to a capacity of 1000 tons of refrigeration. The energy penalty of using this type of unit would be a 5 to 7 percent increase in power consumption and possibly more costly control systems.

7. CFC Recovery During Decommissioning

Recovery of CFC during decommissioning of commercial/industrial units is possible, however the recovery/recycle/destruction technique must be addressed. Environment Canada is of the opinion that this should be dealt with at the provincial level.

8. Work Practice

Service, repair and leakage account for major source of the CFC emissions from centrifugal and reciprocating chillers. Leaks on a refrigeration system occur most frequently from vibration transmitted to piping by movement of the compressor, by pressure pulsations as refrigerant is pushed through the piping, poor purge (discharging) systems, valves and fittings and poor servicing practices. Leaks account for most CFC emissions from chillers.

To reduce this leakage substantially several options can be incorporated into industry practices:

- minimizing leaks from purge systems
- improving relief valves
- installing leak detection and warning systems such as a microprocessor based liquid line monitor
- use of vibration isolators at the compressor
- use of more pipe clamps and supports and allowing for pipe expansion
- use of a receiver tank to contain leaked refrigerants from purge systems.

The American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), a widely recognized professional technical organization that develops industry guidelines, is presently developing workable guidelines to minimize inadvertent losses of CFCs during manufacture, installation, service, and disposal of refrigeration and air-conditioning equipment in the building equipment, appliance and transportation use sectors. These guidelines are scheduled to be released in a draft form by the end of July 1989.

6.3.2 Residential Refrigeration and Air Conditioning

The primary CFCs used in residential refrigeration and air conditioning are:

Substance	ODP	Equipment
CFC12	1.0	Refrigerators, water coolers, refrigerator air dryers, case coolers
HCFC22	0.05	Room and central air conditioners, heat pumps

Note that the HCFC-22 is a soft CFC (ODP=0.05) and is not presently regulated.

Most of the control options described for commercial refrigeration and air conditioning are also applicable to the residential use category with the exceptions of residential air conditioning and heat pumps (contain soft HCFC-22).

To reduce or eliminate the CFC's in this area, the following options are available:

1. Use of Alternative Refrigerants in New Units

Again the use of HFC-134a to replace CFC-12 is a long term solution (5-10 years). Manufacturers are reluctant to switch to HCFC-22 or R-502 for new refrigeration because of technical and economic reasons. The use of Ammonia is another possibility, however its toxicity and flammability are major drawbacks.

2. Separate Refrigerant System for the Refrigerator and Freezer

Known as a "Hybrid Evaporator Concept", this technology involves using HCFC-22 for the refrigerator and CFC-12 for the freezer. This option is presently under study but it is not known when or if units will be commercially available.

3. Recover, Recycle and Re-Use Refrigerants

The issue of CFCs removed from residential appliances are the same on the commercial field but is made more difficult because of the small amounts of CFC-12 in each appliance (0.2 to 0.5 kg) and hence the increased expense of recovery.

4. Disposal

Because disposal accounts for the bulk of emissions of residential refrigerators (refrigerators rarely leak), recovery of

CFC-12 is the best possibility for reducing emissions. CFC are released when refrigerators are shredded before smelting by scrap metal dealers. Recovery would have to be done by dealers, service agents or salvagers prior to final disposal. Regulation would be required and again the Federal Government suggests this would best be addressed at the provincial and municipal level.

6.3.3 Vehicle Air Conditioning

Although vehicle air conditioning is the largest single source of CFC release in North America (these systems are notoriously leaky and need to be refilled frequently), the City of Winnipeg has very few air conditioned vehicles.

CFC-12 (ODP = 1.0) is the exclusive refrigerant used in automobile air conditioners.

To reduce or eliminate CFC-12 used in auto air conditioners the following options are available:

1. Use of Alternative Refrigerants in New or Existing Units

The use of HCFC-22, CFC-502 and HFC-134a are potential substitutes for CFC-12 in auto air conditioners. Because of difficulty in containing the very permeable HCFC-22 and significant re-tooling of airconditioning systems due to its higher operating pressure it is a less desirable alternative or substitute.

Also, because the introduction of HFC-134a will likely occur within 3 years, it is not practical to experiment with these other alternatives.

2. Recover, Recycle and Re-Use Refrigerant

Recovery and recycling of used refrigerant offers the best short term solution to minimize CFC emissions from auto airconditioners. When an auto airconditioner has to be serviced the refrigerant is vented to atmosphere and the unit is recharged. Instead of venting to atmosphere, a recovery and recycling system could be used. Also refer to the previous section 6.3.1.3 Commercial Refrigeration and Air Conditioning - Recover, Recycle and Re-Use Refrigerant.

3. Disposal

When vehicles are discarded, the refrigerant could be recovered by salvagers, however regulations or codes as proposed by Environment Canada in their Draft Proposed Code of Good Practice may be required and be similar to those for the disposal of refrigerators.

6.4 Solvents

Chlorofluorocarbon solvents were developed during the 1950's to clean manufactured parts, particularly in the aerospace and electronics industries. These solvents are presently used in the cleaning of electronic and computer-related equipment, as well as in cleaning various medical and pharmaceutical products. The chemical used is CFC-113 and its advantages relate to its high purity and its compatibility with the materials being cleaned, especially plastics and polyvinyls.

Chlorine based chemicals other than chlorofluorocarbons, which also destroy the ozone layer are methyl chloroform and carbon tetrachloride. These chemicals are not included in the Montreal Protocol. CFC-113 and Methyl Chloroform are used to clean and degrease metal parts, printed circuit boards and semi-conductors and are employed in paint formulations.

Carbon Tetrachloride is used to make CFC's as well as pesticides and dyes.

Solvent emissions result from bath evaporation, solvent carry-out, evaporation of waste solvent and spray evaporation.

The Environmental Protection Agency estimates that over the next century, Methyl Chloroform will account for 35% of the build up of chlorine in the atmosphere.

Environment Canada estimate that there are 2 million kg of CFC solvents used in Canada each year. Of this amount 95% are CFC-113 used primarily in the metal cleaners electronics industry and 5% are CFC-11.

In Winnipeg, the quantity of CFC solvents determined from the survey results (Section 5.4) was estimated at 170 kg. These solvents are composed of CFC-113. No Methyl Chloroform or carbon tetrachloride were found in the survey results. This does not preclude the possibility that they have been used previously or will be used as a substitute in the future.

The solvent sector as a whole is unlikely to be able to make a smooth transition from CFC-113 to a single newly-developed and non-ozone depleting fluorocarbon substitute. The development program for this kind of alternative will not likely provide a substitute in the next five years and may not even do so in the next ten years. Therefore, a mix of solutions should be looked at to bring about an earlier end to the use of controlled CFCs as solvents. Alternative non-fluorocarbon solvents offer a significant potential for reducing the use of CFC-113. However, many of these solvents, such as trichloroethylene, face occupational health and safety barriers. In fact, many of the current uses of CFC-113 are in areas where other solvents were undesirable for precisely these reasons. Under controlled conditions, however, these alternative solvents can replace some uses of CFC-113. The newly developed terpenes (a natural compound derived from citrus fruit rinds) may also be effective. Terpenes do not have major toxicity problems, but they are flammable. The most environmentally safe and worker compatible method of cleaning is to use water as a solvent. It is also important to re-examine performance specifications to determine where cleaning requirements could be reduced without compromising performance.

In this sector, a key feature of the control options to be pursued relates to improved information transfer. Until recently, the cost of using CFC-113 has been so low that many smaller firms have not investigated all potential emission reduction options, although these approaches are well known in larger firms.

In consideration of the foregoing, to reduce or eliminate the ozone depleting solvents the following control options are available:

1. Use of Alternative Solvents

Safe alternatives should be established where possible in consultation with the City of Winnipeg Employee Occupational Safety and Health (E.O.S.H.) and the Purchasing Department. Dupont has introduced new interim products (a) FREON SMT for the electronics cleaning agent industry. FREON SMT reduces the amount of CFC-113 in cleaning machines by about 25%. (b) FREON MCA for the metal cleaning industry. FREON MCA reduces the amount of CFC-113 in cleaning machines by about 37%. These products improve cleaning performance and are usable in existing equipment after minor modifications.

2. Work Practice

Where ozone depleting solvents must be used, codes of practice should be reviewed and measures taken to ensure maximum conservation and recycling of solvents and minimum emissions.

3. Information Transfer

For recommendations 1 and 2 above to be effective, the information resulting from these recommendations should be transferred to users of solvents.

4. Disposal

In conjunction with the Province, requirements for interim storage and/or destruction of ozone depleting solvents should be established.

5. Ban Methyl Chlorofom and Carbon Tetrachloride

The City should urge Environment Canada to expand substances controlled by the Montreal Protocol to include Methyl Chloroform and Carbon Tetrachloride.

6.5 Sterilants

CFCs are used to propel a sterilant gas mixture into a stainless steel chamber for the removal of bacteria from hospital medical devices made of plastic or speciality equipment that would be damaged by use of steam. Air is removed from the chamber and the sterilant, pressurized with the CFC, is introduced for a predetermined period of time and then evacuated. This is followed by a period of airwash for non-flammable sterilant gas. For flammable sterilant gases, carbon dioxide or nitrogen is introduced into the chamber and followed by a period of aeration for further sterilant diffusion.

The gases used by the Municipal Hospital is 12% Ethylene Oxide (EtO) and 88% CFC-12 as the propellant. The Central Sterilization Room in the King George Hospital uses 2827 kg of EtO/CFC-12 with 88% or 2487 kg of this containing CFC-12.

To reduce or eliminate the CFC's used in this application the following options are available:

1. Use of Alternate Propellants

Instead of using the 12/88 mixture of EtO/CFC-12, a 10/90 EtO/Carbon Dioxide mix could be used. However, higher pressures are required and current equipment and lines would have to be replaced.

Another possibility is to replace CFC-12 with HCF-134a (O.D.P. = 0) but this substitute is still undergoing testing and development and will not be ready for 2 or 3 years.

2. Recover, Recycle and Re-Use

It may be possible to reclaim CFC-12 in the 12/88 mixture by using an acid-water scrubber, however no one has tried this yet and it may be economically unattractive.

3. Use of Disposable Equipment

A greater use of disposable equipment to reduce or eliminate the sterilization process is possible, however costs would increase and there could be other disposal problems.

4. Steam Sterilization

Steam sterilization can be used for certain medical instruments that do not require gas sterilization.

5. Use Pure Ethylene Oxide

Another option is to establish a centralized sterilization facility that could service numerous hospitals to maximize the efficiency of gas sterilization and reduce its use. Care must be taken since EtO is highly explosive and a suspected carcinogen.

6.6 Fire Extinguishers

Halon 1211 with an ozone depletion potential of 3 is used in portable fire extinguishers and Halon 1301 with an ODP of 10 is used in total flooding systems. Total flooding systems are used to protect computer rooms, tape libraries, telephone exchanges and valuable historic artifacts since Halon 1301 is not destructive to the protected electronic equipment and is not toxic at the concentrations required to extinguish fires.

To reduce or eliminate Halons the following options are available:

1. Use Alternative Portable Fire Extinguishers

Portable Halon fire extinguishers should only be used for computer rooms and sensitive electronic equipment. A dry chemical extinguisher can be used as an effective substitute.

2. Use of Alternative Agents for Total Flooding Halon Systems

At the present, alternative agents with comparable properties do not exist and the timetable for substitutes with substantially the same properties extends much farther into the future than is the case with CFCs.

Use of Halon 1211 Systems or blends with Halon 1301 is presently being actively pursued. The lower ODP of Halon 1211 systems allows fire protection firms to sell roughly three times more of such systems compared to Halon 1301 systems under the quantity restriction of the Montreal Protocol. Care must be taken though since Halon 1211 is toxic at the concentration required to put out fires. As a result it can only be used in areas that are not normally occupied.

3. Limiting Halon 1301 Systems

Typical Halon 1301 systems protect the rooms that house computer equipment. To the extent that computer equipment can be segregated and housed in smaller compartmentized spaces, smaller fire protection systems using less Halon can be installed. These are referred to as "in cabinet" systems and are being developed by systems manufacturers. Surrounding premises would be protected by non-Halon systems.

4. Discharge Testing

An environmentally acceptable test gas should be used in testing the discharge and integrity of Halon 1301 systems. The Halon Research Institute and the National Association of Fire Equipment Distributors are researching the possible use of Halon 121, HCFC-22, and Sulphur Hexafluoride (SF6) as a fire extinguisher testing agent.

5. Reduce Service Losses, Disposal and Original Equipment Manufacturer Discharges

Manufacturers should reduce their own testing, shipping and filling discharges and invest in recycling. As purchasers of Halon Systems the City of Winnipeg could speed the recycling process by indicating the City will purchase only from firms that recycle their Halon.

6.7 Aerosols

Prior to the ozone depletion theory formulated in 1974, CFC-11 and CFC-12 used as propellants in aerosol products accounted for about 50% of all CFCs in North America. Canada prohibited the use of CFC propellants in hairsprays, deodorants and anti-perspirants in 1980. Prior to 1987, 2 million kg of CFCs used in Canada were aerosols. Today it is estimated this has dropped to only 50,000 kg per year. On January 10, 1989 the Canadian Aerosol Information Bureau confirmed the following to Environment Canada:

- 95% of all aerosol products do not contain CFCs
- aerosol products still using CFCs include electronic solvents, some fragrances, one oven cleaner and some low-user products.

On February 1989, Environment Canada released a draft regulation prohibiting uses of CFCs in the toiletry/personal care category. Consultation is now in progress and a regulatory announcement in the Canada Gazette, Part 1 is expected before January 1, 1990.

Only CFC products deemed essential will be exempted from this regulation. This includes mould release agents, cleaners and solvents products for electrical/electronic equipment, lubricants in mining applications, bronchial dilators, veterinary wound sprays and cyto-spray fixative for microscopic plates.

Together these essential uses listed above use very little CFCs. In the long-term, environmentally acceptable substitutes may be found.

Since the CFCs in aerosols is of such a small quantity and the non-essential uses will be banned within 1 year, use in the City will be miniscule.

The only use identified within the City were aerosols used in the cleaning of electrical/electronic equipment. For these applications, aerosol products may be available in non-ozone depleting forms such as hand pumps and spray bottles, or in forms that do not require spray application.

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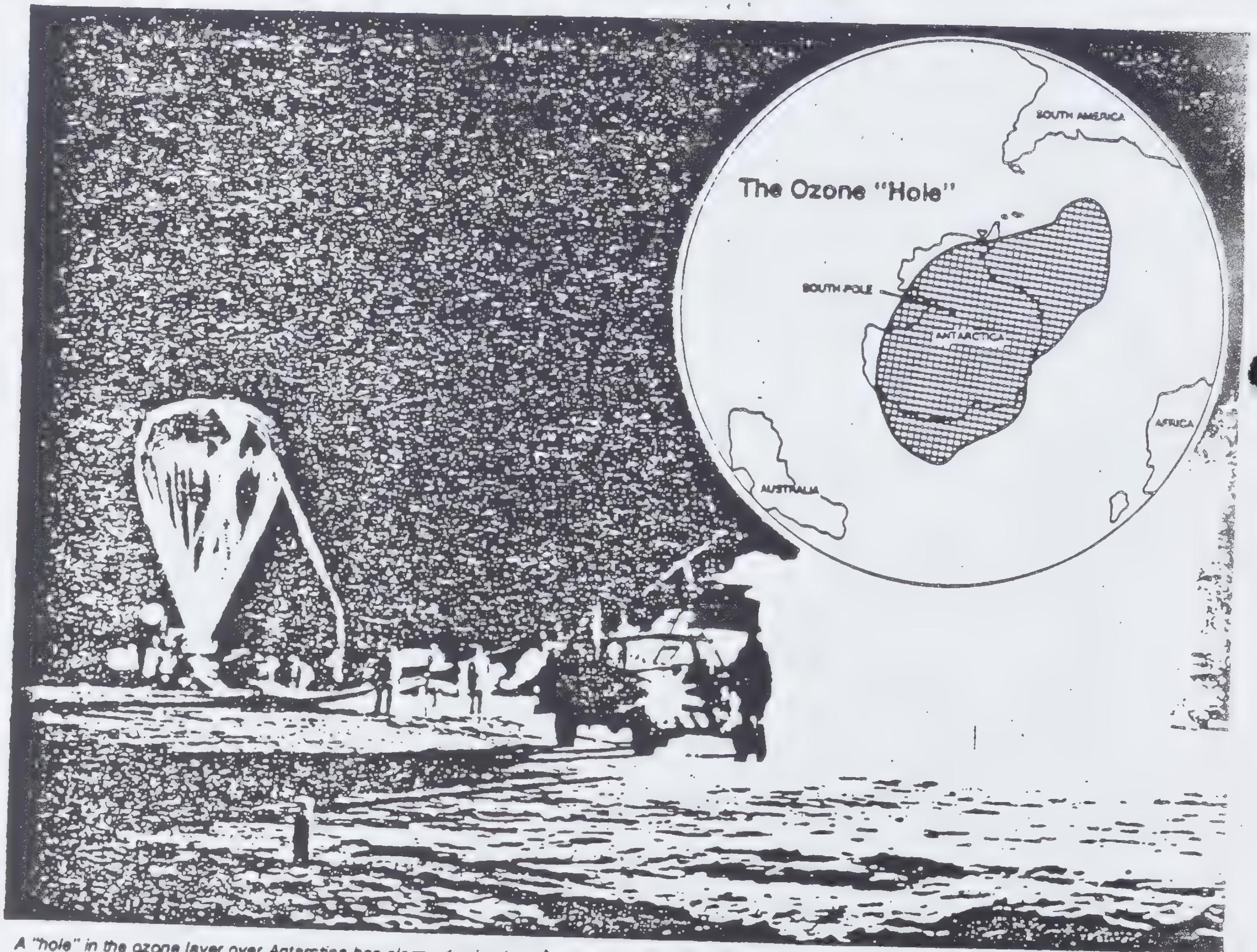
Fact Sheet APPENDIX A

Environment Canada | Environnement Canada

Atmospheric Environment Service | Service de l'environnement atmosphérique

Atmospheric Environment Service

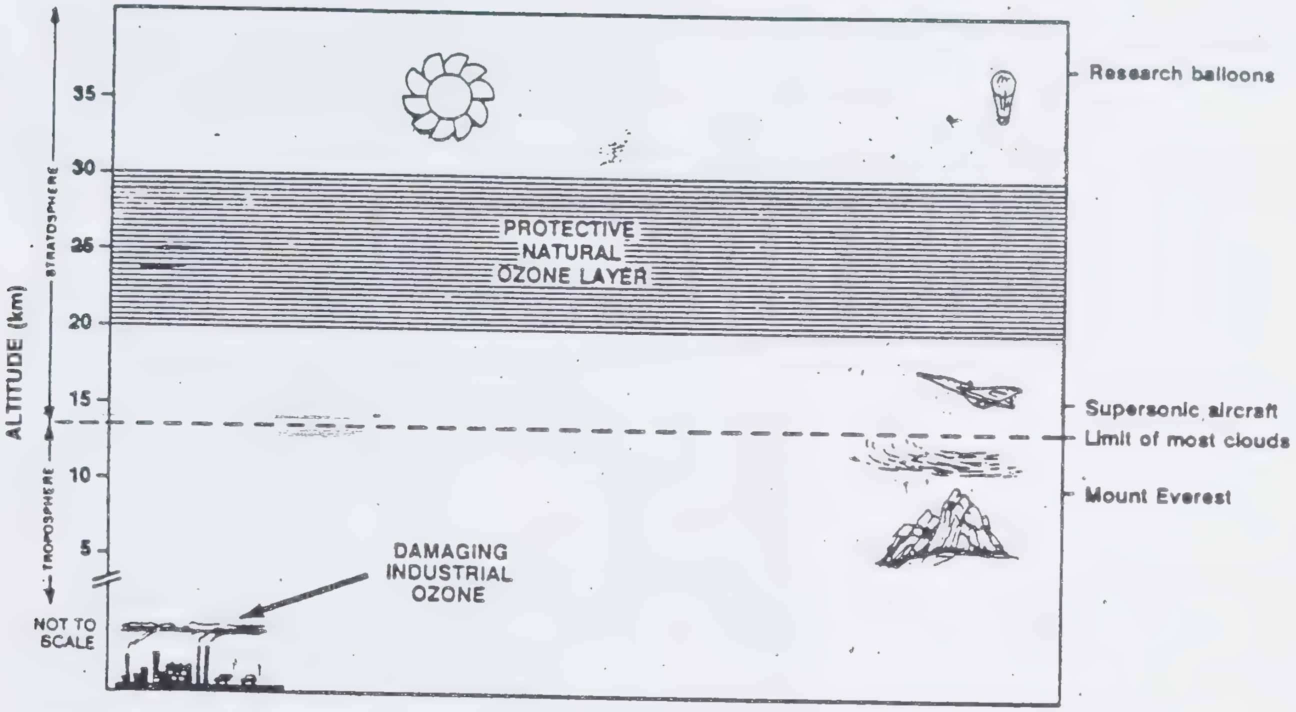
THE OZONE LAYER



A "hole" in the ozone layer over Antarctica has alarmed scientists. Satellite photography captured the hole (shaded area) as it appeared in October, 1986. At the other end of the earth, Environment Canada launches a research balloon to study the Arctic ozone layer (photo).

Human activities have had such an impact on our planet that we are now changing the balance of gases in the earth's atmosphere. There is widespread concern that chemical contamination has reached even the upper layers of the earth's atmosphere and could be threatening the planet's fragile ozone layer — a layer of gases that protects us from the damaging rays of the sun. The ozone layer absorbs much of the sun's ultraviolet rays — dangerous radiation which can cause skin cancer, reduce crop yields and damage aquatic life. Indeed, serious depletion of the ozone layer could affect most life on earth.

Ozone in the Atmosphere



In the upper atmosphere, a protective layer of ozone shields us from the sun's damaging rays, while at ground level this same gas is a serious air pollutant. (Most of the ozone in the upper atmosphere occurs between 15 and 35 km, with the heaviest concentration between 20 and 30 km.)

In recent years, scientific attention has focused on ominous changes in the ozone layer. Over the past decade, the global ozone layer appears to have been slowly depleting. Measurements taken over Toronto, for example, show a loss of 3-4% since 1975. However, it was the discovery of a sudden unexplained "hole" in the ozone over Antarctica that galvanized scientific interest. Here the ozone layer has been observed to thin dramatically during the spring over an area the size of the continental United States. At the centre of the "hole", the ozone layer has decreased by 40% over the last 10 years. Environment Canada scientists are currently studying the Arctic to find out if similar conditions may be developing there.

Scientists do not fully understand these changes, but they are concerned that they could indicate a serious weakening in the earth's protective ozone shield. Although some changes in the ozone layer could be due to natural conditions, increasing evidence now points to chemical contamination from our industrialized society as the root cause.

What is Ozone?

Ozone (O_3) is a pungent-smelling slightly bluish gas, which is a close chemical cousin to oxygen (O_2). The ozone in our atmosphere is spread so thinly that its bluish color would never be noticed. However, one can occasionally catch a whiff of this gas after a thunderstorm. Lightning can literally split apart the air molecules, which re-combine to form a trail of ozone, leaving that sharp "clean" odour which soon dissipates after the storm.

About 90% of the earth's ozone occurs in a natural layer far above the surface of the globe, in a frigid region of the atmosphere known as the stratosphere. Natural ozone can also be found at ground level, however most low level ozone is formed as a result of human activities. Ironically, ozone near the ground is a serious air pollutant, damaging human health and agricultural crops in, or near, large urban areas. Pollution from motor vehicles is the primary cause of high concentrations of ground level ozone. Ozone is formed from car exhaust and gasoline vapours which collect over cities on hot summer days. A thick blanket of smog — in which ozone is a key ingredient — can result.

High Altitude Ozone — The Protective Shield

The ozone layer in the upper atmosphere acts as a natural filter, absorbing most of the sun's damaging ultra-violet rays. Excessive exposure to ultra-violet can cause serious damage to living tissue — these are the rays responsible for sunburn and some forms of skin cancer. Ultra-violet can also suppress the human immune system, leading to greater susceptibility to disease.

These rays also cause skin and eye ageing in humans and other animals and slow the growth of plants. Many agricultural crops are particularly sensitive, including some of the world's most important food crops: wheat, rice, corn and soybeans. Aquatic life near the ocean's surface is very susceptible to ultra-violet damage as well, and excessive exposure could disrupt fish production in the world's oceans. Even industrial materials, such as plastics and paints, have been shown to be affected, becoming yellow and brittle with lengthy exposure.

Threats to the Ozone Shield

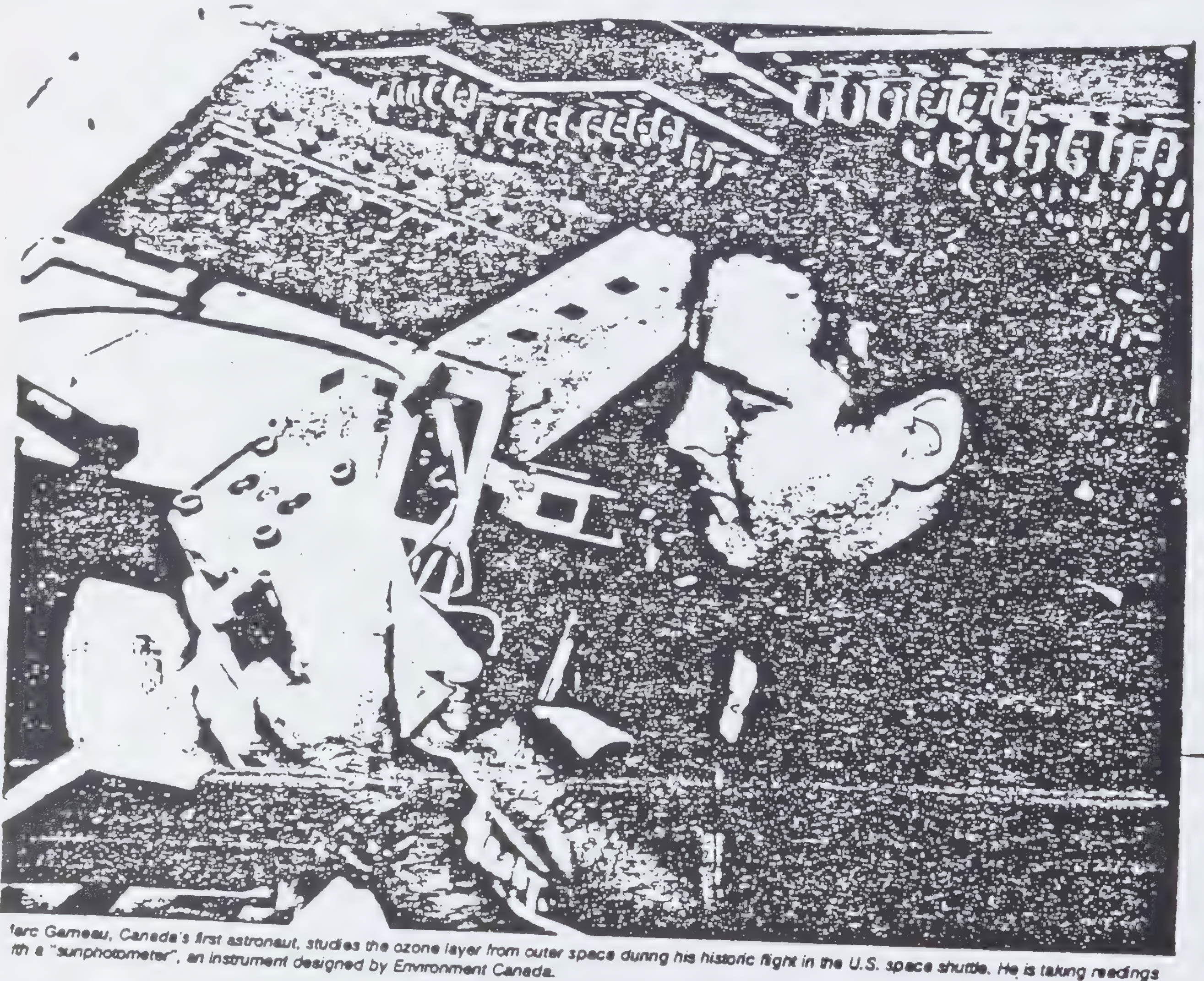
Most of the ozone in the stratosphere is found in a layer about 20 km thick, lying between 15 km and 35 km above the earth's surface. Here in these frigid heights, the ozone is spread so thinly that if it were compressed to ground-level pressure, it would form a layer only 1/3 cm thick. Ozone is a very unstable substance which can be readily destroyed by contact with certain industrial pollutants.

Even 15 km straight up isn't far enough away to escape the effects of human activities. Air pollutants reach the stratosphere by slowly drifting up from the lower atmosphere, or by being injected directly from high altitude aircraft and space vehicles.

Concern about the ozone layer first surfaced in the early 1970s when high altitude aircraft were originally proposed. Fleets of supersonic planes were to fly at high speed through the stratosphere — far above the height of normal aircraft — leaving ozone-destroying exhaust fumes in their wake. However, the new jets proved to be uneconomical and were never widely used. Today the European "Concorde" is the only high altitude plane in regular service. (Other vehicles travelling through the stratosphere, such as space craft and new military aircraft, do not pose a problem at present, as they have not yet come into heavy use.)

In the mid-1970s, attention had switched from advanced high-tech aircraft to the ordinary aerosol spray can. By this time, spray cans had become a tremendously popular item — used by millions on a daily basis to dispense products such as hair sprays and deodorants. The products in these spray cans were mixed with propellants and stored under pressure. When the can was used, the propellant helped to force out the contents.

Industrial chemicals, known as "CFCs" ("chlorofluorocarbons", or "freon gases") were used as the propellant. CFCs are a stable non-toxic group of chemicals which were considered to be environmentally safe. Unfortunately, the environmental effects of CFCs were considered only for the lower atmosphere.



larc Gameau, Canada's first astronaut, studies the ozone layer from outer space during his historic flight in the U.S. space shuttle. He is taking readings ith a "sunphotometer", an instrument designed by Environment Canada.

During the 1970s, the use of spray cans released literally thousands of tons of CFCs directly into the lower atmosphere, where they began their gradual drift up into the stratosphere. Although CFCs are very stable in the lower atmosphere, scientists are concerned that once they reach the stratosphere, these chemicals break apart and react with other gases. One of the substances that is produced in this break down process is chlorine. Chlorine has a voracious appetite for ozone — a single molecule is capable of destroying thousands of molecules of ozone.

CFCs are totally man-made and do not occur in nature. They have been found to be very useful in a wide variety of industrial processes, since they are non-toxic and non-flammable. In many cases, CFCs have replaced chemicals which were seen as being much more directly hazardous to human health. CFCs are now used not only in spray cans, but also to manufacture foam insulation and padding, as coolants in refrigerators and air conditioners, and as solvents for cleaning microchips and other electronic equipment.

In the late seventies, steps were taken to reduce the use of CFCs in spray cans. In 1976, Canadian industry agreed to cut this use by half. In fact, this objective was surpassed, partly because of a widespread consumer boycott. In 1980, Canada banned the major propellant uses — in hair sprays, antiperspirants and deodorants. This action reduced the total use of CFCs in spray cans in Canada by 86%. This resulted in an overall national reduction in CFC use of 45%. Similar bans were undertaken in the U.S.A. and Nordic countries in the late 1970s and early 1980s. Europe followed suit with less restrictive regulations. These actions caused a sharp drop in the global release of CFCs.

However the use of CFCs is now rising again. In North America, production of these chemicals is returning to the levels of the early 1970s, as uses other than spray cans become increasingly popular. The current global production of CFCs is also growing steadily. Almost 1/3 of the CFCs used world wide today are still sprayed from cans directly into the atmosphere.

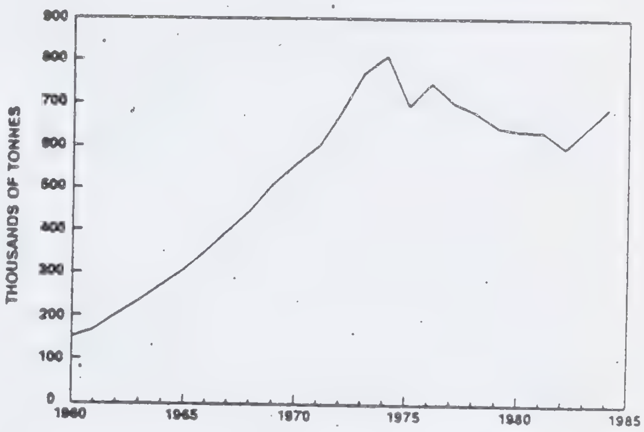
The problem is further compounded by the fact that, once released in the atmosphere, most CFCs remain there for longer than 75 years. Thus virtually all of the CFCs that have ever been released are still in the atmosphere, still drifting slowly up to the stratosphere. At current rates of production and use, rougly 800,000 to one million tonnes of CFCs are added each year to this ever-increasing global pool of ozone-destroying chemicals in our atmosphere. Because of this huge reservoir of CFCs, global action to control these chemicals must be taken well in advance of any evidence of a major depletion of the ozone layer.

However, even small changes in the ozone layer can have significant impacts. Studies show that even a 1% depletion would result in a 4% increase in non-melanoma skin cancer. Although this form of skin cancer is rarely life-threatening, it can be highly unsightly.

Scientists strongly suspect that an increase would also occur in malignant melanoma — a rarer but often fatal form of skin cancer. The world's major food crops would be affected as well. Although much research remains to be done, preliminary studies on soya beans indicate that a 1% depletion of ozone would result in a 1% reduction in crop yield.

There is also concern that CFCs may be contributing to another important environmental problem: global climate change. Through a process known as the greenhouse effect, the world climate is expected to become warmer, with accompanying shifts in rainfall patterns and increases in sea level. CFCs and carbon dioxide are expected to be major contributors to this greenhouse effect. Although CFCs are far less abundant than carbon dioxide, their effect on climate, molecule for molecule, is about 10,000 times more powerful. If CFC production and use continues at current rates, the greenhouse effect of CFCs could equal that of carbon dioxide within 50 years. Even today CFCs contribute 10-15% of the current greenhouse effect.

Global Production of CFCs



The world production of CFCs, which threaten the ozone layer, is increasing again, after a sharp decrease in the early 1970s, when their use in spray cans was restricted.

Can the Threat be Reduced?

Substitute chemicals and improved methods of handling CFCs could greatly reduce the threat to the ozone layer.

CFCs are widely used as coolants in refrigerators and air conditioners. Although the chemicals are sealed inside the appliances, they can escape during filling, servicing, or the eventual disposal. Automobile air conditioners are particularly susceptible to leakage, as many of the joints and seals must be flexible to accommodate the movement of the vehicle.

CFCs are also heavily used to manufacture foam products — both soft foam padding, and rigid foam used for packaging and home insulation. Here the chemicals are used as a gas to "blow" the foam. During the production of these products, large amounts of CFCs are released to the atmosphere. The manufacture of rigid foam insulation is growing rapidly, as this material is now commonly used to insulate homes and to produce foam food containers, including egg cartons, meat trays and fast food containers.

In recent years, CFCs have also become very popular as solvents for cleaning microchips and electronic components.

In most of these uses, opportunities exist to greatly reduce both the amount of CFCs used and the quantity that is released to the atmosphere. CFCs can be removed from discarded cooling systems, recaptured during the production of foams, or recovered from used solvents. The chemicals can then be cleaned and reused. Such procedures are now being carried out only on a very limited basis in certain industries, since, in most cases, such recycling is seen as uneconomical.

In some instances, the use of CFCs themselves can be questioned. Butane and other similar material have proven to be effective substitutes in spray cans. Food containers could be made from other materials, such as paper and cardboard. Do we really need to eat hamburgers out of foam boxes?

Substitute chemicals have been developed for CFCs which present little or no threat to the ozone layer. These include fluorocarbons (CFC-like chemicals which contain no chlorine) and CFCs which break down rapidly in the lower atmosphere. Unfortunately, these chemicals are more expensive than the CFCs now in use, and are not likely to come into widespread use until existing CFCs are banned.

A Hole in the Sky?

Scientists have detected a disturbing thinning of the ozone layer over the Antarctic during the polar spring (in September and October). This "hole" appears to be spreading steadily, becoming wider and thinner over the past decade. In recent years, the ozone has thinned by about 40% over an area the size of the continental United States. (This represents a decrease of about 4% per year). This "hole" lasts for only about two months each year and then fills in.

Scientists are now actively searching for the cause of the ozone hole. Although much more research is needed, preliminary investigations have focussed on three possible causes: 1) pollution collecting at the south pole, 2) possible changes in the earth's wind and weather patterns (perhaps due to the "greenhouse" effect), or 3) variations in the Antarctic climate due to natural causes, such as sun spot cycles.

Recently a minor thinning has been reported in the ozone over the Arctic. This thin spot, centered over the Spitsbergen Islands, north of Norway, is much less pronounced than the "hole" in the Antarctic, with a decrease of about 1.5-2% per year and covering an area only 1/3 the size. Environment Canada scientists have intensified their studies of this area. However, small decreases such as this may well be within the range of natural fluctuation.

Keeping Watch on the Ozone Layer

The ozone layer is truly a global concern. The international scientific community is keeping close watch on our protective shield through a world-wide network of measuring stations, co-ordinated by the World Meteorological Organization. Environment Canada plays a leading role in this system by operating the World Ozone Data Centre, which has collected over 20 years of data from the global network and ensures its availability to the world's scientists. Such information is essential for understanding long term change in the ozone layer.

Keeping tabs on a layer of invisible gases 25 km above the earth's surface is no easy task. Scientists at Environment Canada use a variety of techniques to study our protective shield. Huge helium-filled balloons — some as tall as 28 meters — carry measuring instruments to heights of up to 40 km. High altitude rockets are also used. Measuring instruments have also been developed that are so sensitive they can take readings of the gases in the stratosphere from the surface of the earth, or from outer space.

Marc Garneau, Canada's first astronaut, studied the ozone layer from outer space during his historic flight in the U.S. space shuttle in 1984. He used a Canadian instrument known as a sunphotometer to take readings of ozone and other gases in the earth's atmosphere.

In recent years, satellite measurements have also proved to be a most useful tool, by providing a comprehensive global overview of the ozone layer. Maps developed from satellite data clearly show fluctuations in the layer and could be a key factor in understanding the Antarctic ozone hole.

The global ozone measuring network relies mainly on ground-based instruments which measure the height and thickness of the ozone layer from the surface of the earth. As part of this network, Environment Canada operates stations at Toronto, Edmonton, Churchill, Goose Bay (Labrador) and Resolute (N.W.T.).

Environment Canada's Atmospheric Environment Service has perfected the design for a modernized ground-based ozone measuring instrument — the Brewer Ozone Spectrophotometer. This is a unique, state-of-the-art instrument which is now being used to upgrade the global network of measuring stations. The new instrument has proved to be a valuable aid to scientists as it makes measurements easier and more precise. In the near future, this instrument is scheduled to fly on board the U.S. space shuttle mission, to measure the ozone layer from outer space.

A Global Commitment

Canada has become a world leader in encouraging international protection of the environment by playing a key role in the development of a global agreement to safeguard the ozone layer. The 1985 Vienna Convention for the Protection of the Ozone Layer, developed under the United Nations Environment Program, is truly a "first" for the safeguarding of both the environment and human health.

The convention established a framework which will protect the earth's upper atmosphere through cooperative international efforts. It also provides for international cooperation in scientific research and information exchange. Canada signed the agreement in 1985 and was the first nation to formally ratify it in June 1986. To date, 28 countries have signed the convention.

Environment Canada is now working with other nations to develop international pollution control standards to limit the release of ozone-destroying substances. Canada is advocating for a long term strategy — one that would see both the production and release of CFCs decline, and one that would control other ozone modifying substances as well. (Other chemicals, such as halons, which are used as fire extinguishers and fire supressants may also pose a threat if their usage increases). These standards will be adopted as a protocol to the Vienna Convention at an upcoming conference in Montreal.

Throughout the lengthy negotiations to develop both the Vienna Convention and the subsequent pollution control standards, Canada has played a key role. It was a Canadian proposal presented in 1986 which broke a serious deadlock in the negotiations and paved the way for the development of the final pollution control agreement, in which Canadian contributions are expected to play an important role. In recognition of Canada's efforts the United Nations Environment Program has accepted Canada's offer to act as the host country for the signing of this vital international agreement.

Although much work remains to be done, these controls will truly represent a major landmark in our earth's history. They will represent the first real international action to protect the global environment. They will also mark the first concerted international effort to prevent an environmental problem, before it reaches the crisis stage. Hopefully, the Vienna Convention for the Protection of the Ozone Layer will become a global turning point and a model for continued world-wide cooperation to safeguard our planet.

For more information contact:

Environment Canada
Atmospheric Environment Service
4905 Dufferin Street
Downsview, Ontario M3H 5T4
(416) 667-4551

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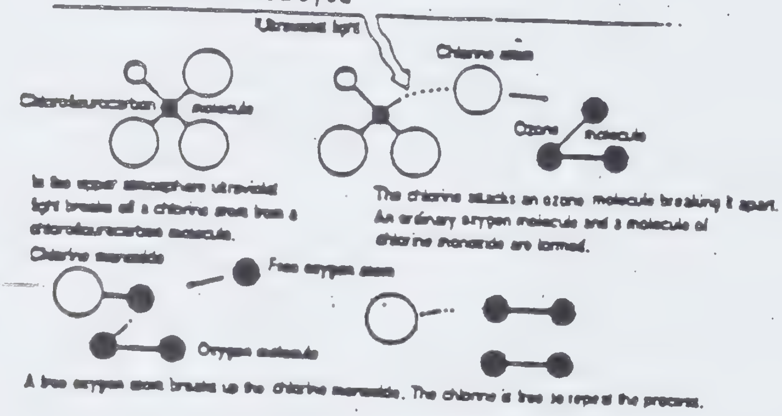
APPENDIX B

HOW CFCs AND HALONS DESTROY OZONE

CFCs and Halons remain in the atmosphere for decades, slowly migrating upwards without reacting with any other chemicals. In the atmosphere, the lower atmosphere, along with other chemical compounds, they absorb infrared radiation radiated from the earth's surface. This heat is trapped to create a "greenhouse effect," which scientists predict will have extreme adverse environmental consequences, ranging from sea level rise, which will flood and destroy coastal zones, disruption of agriculture due to shifts in global temperature and rainfall patterns, to the extinction of certain plant and animal species. When CFCs and halons reach to the stratosphere, the upper atmosphere, they finally break down to release chlorine, which in turn causes ozone destruction. One chlorine atom can destroy as many as 100,000 ozone molecules before it is rendered inactive or removed from the atmosphere.

Research has shown that when CFC (or halon) molecules react with UV light in the stratosphere, they break down, freeing chlorine (or in the case of halon molecules, bromine), fluorine, and carbon atoms. Following is a schematic diagram of the chemical reactions. When a chlorine atom meets an ozone molecule, it "steals away" an oxygen atom to form chlorine monoxide and an ordinary oxygen molecule, thereby destroying the ozone molecule. If the chlorine monoxide molecule meets another oxygen atom, the two oxygen atoms combine, freeing the chlorine atom to meet yet another ozone molecule. One chlorine atom can destroy as many as 100,000 ozone molecules before it is rendered inactive or removed from the atmosphere.

How Ozone Is Destroyed



In the upper atmosphere ultraviolet light breaks off a chlorine atom from a chlorofluorocarbon molecule.

The chlorine attacks an ozone molecule breaking it apart. An ordinary oxygen molecule and a molecule of chlorine monoxide are formed.

A free oxygen atom breaks up the chlorine monoxide. The chlorine is free to repeat the process.

APPENDIX C

CITY OF WINNIPEG

INVENTORY OF EQUIPMENT AND MATERIAL CONTAINING CHLOROFLUOROCARBONS (CFC'S) OR HALONS

DEPARTMENT ____________________

A. REFRIGERATION, COOLING, & FREEZING EQUIPMENT

(Eg. window air conditioners, refrigerators, freezers,
stationary air conditioners: roof or floor mounted,
coolers: walk-in or cabinet,
vehicle air conditioners, etc.)

TYPE ____________________ AGE ____
LOCATION ____________________ NUMBER ____
REFRIGERANT TYPE USED ____________________
(Eg. Freon 12 or 22 etc.)
WEIGHT OF REFRIGERANT IN EQUIPMENT ____________________

B. FIRE EXTINGUISHING EQUIPMENT

(Eg. fixed or portable. In case of portable unit group sizes)

TYPE ____________________ AGE ____
LOCATION ____________________ NUMBER ____
PROPELLENT TYPE USED ____________________
WEIGHT OF PROPELLENT IN EQUIPMENT ____________________

C. AEROSOL CANS

TYPE AND TRADE NAME ____________________
LOCATION ____________________
NUMBER OF CANS USED PER YEAR ____________________
SIZE/WEIGHT/VOLUME OF CAN ____________________

D. SOLVENTS AND STERILANTS

TYPE AND TRADE NAME ____________________
LOCATION ____________________
QUANTITY USED PER YEAR ____________________
SIZE/WEIGHT/VOLUME ____________________

Note: Foam Products are not to be included in this Survey.

Form cfctf1.89

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THE ASSOCIATION OF PROFESSIONAL AND ADMINISTRATIVE EMPLO
OF THE CORPORATION OF THE CITY OF HAMILTON
INCORPORATED 1973
CITY HALL, P.O. BOX 2040, HAMILTON, ONTARIO L8N 3T4

1990 May 31

Alderman B. Hinkley, Chairman
Finance and Administration Committee

Re: Environmental Concerns

At its meeting held 1990 May 16 the Association of Professional and Administrative Employees Executive Board and Department Representatives discussed their potential involvement in recycling initiatives in City Hall. The members are concerned that the City of Hamilton, as a Community Leader, has not taken the initiative to utilize recycled materials or, to recycle the materials that are presently being used. We were pleased to find out that the City and the Region are investigating various possibilities for: recycling, the use of recycled paper, the abandonment of the styrofoam cup, etc. in City Hall. It is our intention to regularly promote an environmentally friendly attitude amongst the APAE membership,

We wish to advise that the Association of Professional and Administrative Employees strongly supports any initiative which targets the reduction in the amount of waste that City employees produce. We would be pleased to assist in any upcoming initiatives in this regard.

Yours truly,

John Oddi

Mr. J. Oddi, Chairman
APAE

JO:bk

cc: Mr. D. Carson, Executive Assistant
to the Mayor

Mr. L. Sage, Chief Administrative Officer

Mr. J. Ramsey, Secretary
Chairman's Advisory Committee on Environmental Issues

Mr. D. Heintz, Secretary
Keep Hamilton Clean Citizens' Committee

RECEIVED

3 L)

Re•Met Processing Inc.

200 • 1055 West Hastings Street
Vancouver, British Columbia
Canada V6E 2E9

Telephone 604 682•8320
Facsimile 604 682•4286

May 11, 1990

Mr. Reg Whynott
Regional Chairman
119 King Street West
P.O. Box 910
Hamilton, Ontario
L8N 3V9

Dear Mr. Whynott:

Re-Met Processing Inc. has developed an environmentally safe and effective process to recycle iron oxide fines produced by the steel industry. The steel industry in southern Ontario and Quebec generate large quantities or iron oxide fines from their steel making operations. The Re-Met recycling plant is designed to process a minimum 325,000 tonnes of iron oxide fines per year from blast furnace (BF), basic oxygen furnaces (BOF) and electric arc furnaces (EAF). Most of these oxides cannot be recycled safely by the individual steel producers because the oxides are too fine and are contaminated with zinc, lead, chlorine, cadmium and alkalis. Landfills are currently being used for the disposal of these fines. The iron, zinc, lead and other metals are being lost as a potential high grade sources of metal. The current practice of disposing of the iron oxides in landfill sites creates a potentially serious environmental concern due to the leaching of lead, zinc, cadmium and other contaminants into the ground water ecosystem. The Re-Met recycling process is designed to address these concerns.

The successful operation of the Re-Met facility will result in the annual reduction of required landfill volume by approximately 320,000 cubic meters per year and remove the risk of contaminated materials entering the environment.

The Re-Met recycling facility will recover approximately 135,000 tonnes of iron, 10,800 tonnes of zinc and 1,015 tonnes of lead per

.../2

year from the 325,000 tonnes of iron oxide fines produced by the steel producers. More specifically the recycling plant will produce 208,000 tonnes of iron pellets and 20,375 tonnes per year of saleable zinc/lead fume.

The Re-Met recycling plant will be located in the Hamilton Harbour area and will employ approximately 100 to 150 construction workers during the two year construction period. The recycling plant will employ approximately 75 people for operation and management of the plant. Additional employment opportunities will be created for transportation and maintenance activities associated with the recycling operation.

We trust that this information with the enclosed brochure will provide you with a better insight into the Re-Met process. Should you have any questions or require additional information please do not hesitate to contact Steve Manz, Vice-President or me at any time.

Yours very truly,

RE-MET PROCESSING INC.

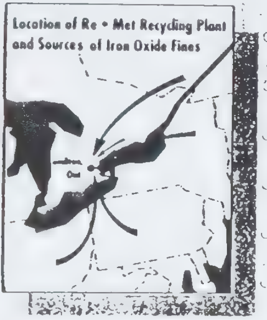
William J. Witte
Project Manager

wjw
Enclosure

● The Environmental Challenge

The steelmaking companies in the Great Lakes region generate large quantities of iron oxide fines from their blast furnaces (BF), basic oxygen furnaces (BOF) and electric arc furnaces (EAF). The proposed Re•Met recycling plant has been designed to process the waste oxides which are currently being produced and landfilled in the region.

Most of these oxides cannot be recycled safely or economically by the individual steelmakers as the oxides are too fine and are contaminated with zinc, lead and alkali metals. Consequently, the majority of waste oxides are stockpiled, utilized as landfill, or in the case of those with high values of lead and zinc, disposed in specially developed landfill sites. The iron, zinc and lead contained in these recyclable iron oxide fines are therefore being lost as a potential high grade source of metal.


Location of Re • Met Recycling Plant and Sources of Iron Oxide Fines

The current practice of disposing these oxides in landfill sites creates a potentially serious environmental concern due to the leaching of lead, zinc, cadmium and other contaminants into the ground water ecosystem. This leachability is significantly increased when the landfill sites are exposed to acid rain.

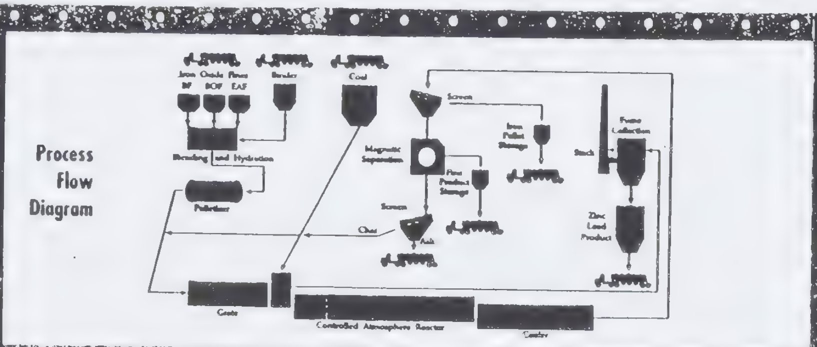
● The Re • Met Solution

Steel companies in the past have conducted research on the treatment of their own waste oxides, and have concluded that recycling by individual companies is not economically viable. The large capital costs associated with such a recycling plant warrant that a collective supply of material be obtained from all the producers and be recycled in one large operation.

The economics of such a project clearly dictate that an independent regional processing facility be developed. By adapting proven technology, Re•Met has developed a strategy to fill this niche.

Over the last four years, Re•Met has successfully completed an extensive collection of studies to support the construction of the recycling facility. This work included a refinement of the technology, bench and pilot testing of blended samples of oxide fines obtained from the various steelmaking operations, discussions with governmental agencies, municipal officials, transport companies and suppliers, plus the preparation of feasibility studies.

This centrally located plant will produce iron pellets which can directly re-enter the steelmaking process, as well as a zinc/lead concentrate that can be recycled into usable metal.


Process Flow Diagram

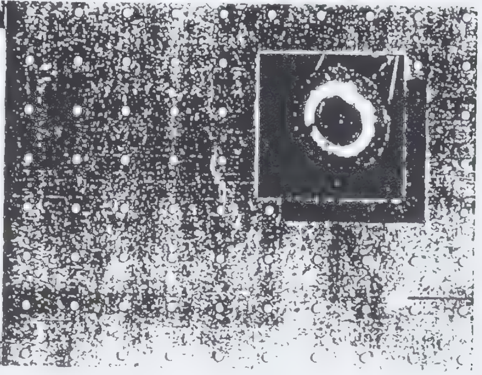
● The Benefits

- The operation of the Re•Met recycling plant will result in an annual reduction of approximately 320,000 cubic metres of landfill per year. With plant start up scheduled for early 1992, the plant will be coming on line as the current landfill sites reach capacity.
- Re•Met will be receiving its income through the sale of the iron pellets, the sale of the enriched zinc/lead product and a treatment income similar to fees currently being paid by the steel producers for landfilling.
- The Re•Met recycling plant will recover approximately 140,000 tonnes of iron, 11,000 tonnes of zinc and 1,200 tonnes of lead per year.
- The Re•Met project will provide numerous socio-economic benefits to the Hamilton area through the creation of jobs and the infusion of hundreds of millions of dollars into the local economy.

● The Re • Met Project Team

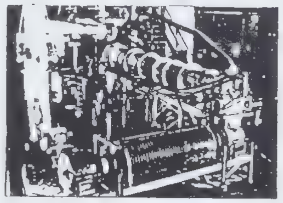
Re•Met is a private Ontario company owned 42.5% by Witteck Development Inc., 42.5% by Gail Resources and 15% by Marshall Minerals. Marshall Minerals is a publicly owned company traded on the Alberta Stock Exchange. Gail Resources is controlled by Mr. and Mrs. Harry Quint, private U.S. investors, while Witteck is controlled by Margaret K. Witte. Witteck Development is the operator of the project.

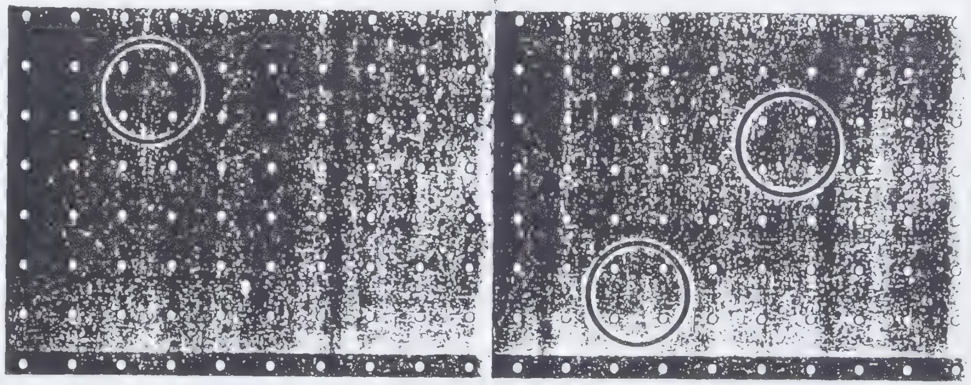
The Re•Met project team has extensive experience developing and building large scale commercial and industrial projects. These projects include the development and financing of the Gull Landing Buffalo Waterfront project, and Neptune Resources' $155 million Colomac gold mine. Witteck has been a leader in the metallurgical industry for many years and has developed its technical expertise through the operation of a large metallurgical research facility.



Project Highlights

- The construction of Re•Met's 325,000 tonne per year recycling facility is a timely solution to an expanding environmental problem. Recognizing a need for such a regional facility, Re•Met's proven management team has developed a concept which utilizes a technology having an ample precedent of success.
- The 40 million dollar Re•Met iron oxide recycling plant, located in Hamilton, Ontario, is scheduled for start up in early 1992.
- The recycling of the waste oxides will result in the annual production of 200,000 tonnes of metallic iron pellets and 20,000 tonnes of a valuable zinc/lead product.
- The Re•Met recycling plant will employ approximately 150 construction workers and 65 engineers during the construction phase, and 70 people for regular operations and management of the plant.
- The estimated direct and indirect benefits to the economy will be $115 million during the construction phase, and $50 million annually during regular operations.





For detailed information on the Re•Met Iron Oxide Recycling Project, write or call:

Re•Met Processing Inc.
200-1055 West Hastings Street
Vancouver, B.C. V6E 2E9
Telephone: (604) 682-8320
Fax: (604) 682-4286

The Re • Met Solution

Iron Oxide Recycling Project

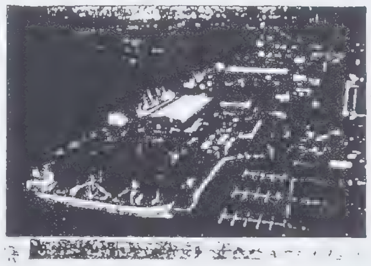
REMET
Re•Met Processing Inc.

Iron Oxide Recycling Project

An exciting new project is coming to the Hamilton area. Re•Met Processing Inc. is planning the construction and operation of a recycling plant in Hamilton, Ontario, to recycle waste iron oxide fines currently being produced by steel making companies in the Great Lakes region.

The 325,000 tonne per year Re•Met plant will produce valuable iron, zinc and lead products from waste oxides which are now being land filled by the steel-making companies.

By profitably recycling a waste product which may have adverse long term environmental effects, Re•Met will serve as an ideal model for the future development of technologies designed to responsibly integrate the environment and the economy.



RECEIVED MAR 2 3 1990

March, 3(m)

Dear Jack-

Enclosed are a few items indicating my long-time interest and concern regarding what the U.S. EPA calls not a, but THE major source of indoor air pollution — namely, smoking cigarettes.

It's been a long time in gelling in the public mind that cigarette smoke is the outstanding pollutant and contaminant of the indoor environment where most people spend most of their time, but *this* is the year of gelling — and of intent to avoid it.

In my view, nothing provides a more focused FOCUS for cost-effective remedial action than the awareness that such action must *begin*, literally, right under our noses. If the operative words are truly AIR, AWARE, FAIR, SMOKE and CARE, then we are on track.

Looking forward to lending a helping hand.

Yours truly.

(over)

McMASTER UNIVERSITY
faculty of health sciences
ANATOMY AND EXPERIMENTAL MORPHOLOGY
1200 Main Street West, Hamilton, Ontario, Canada L8N 3Z5
Telephone: (416) 525-9140

George Lewis
265 Lewis Road, Winona
Box 113 L0R 2L0

643-3665

A Caring Project - 1990 SMOKE-FREE!

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FRIDAY, JANUARY 10, 1986

Quitting for charity

So, little more than a week into the New Year and your family has found you chewing the living room carpet — an emotional excess yielding much the same taste in the mouth as the cigaret craving that caused it. Worse, you may have fallen prey to the subversive thought processes that lurk treacherously at the back of every reforming smoker's mind, suggesting an inviting series of rationalizations for giving up the effort to quit.

Maybe, after all, the New Year's resolution is an unsuitable vehicle to carry as fragile a commodity as human resolve through the bumpy weeks of January — though there is some reason to believe that giving up cigarets works better if it is imbued with significance. Perhaps if it were in double harness with some other noble cause, it would stand a better chance.

George Lewis, who teaches anatomy at McMaster University and is probably the most implacable foe of smoking in all of Canada, likes the double harness approach — and he has one in mind. Although firmly convinced that quitting is the best gift anyone can give himself or his family, Prof. Lewis is quite willing to work in economic motivation and the appeal of other worthy causes.

Noting the ready, generous response of Canadians to appeals for aid to the hungry in Africa, it occurred to him that Canada's 7.4 million smokers, in the course of giving up the habit, might consider contributing the cost of one packet of cigarets a week to the cause of alleviating hunger. There is a potential here for about $17-million a week in aid, with substantial health benefits and reduced Canadian health costs into the bargain. Together, of course, with the reinforcing effect of an obligation to help the less fortunate.

This is, of course, pure fantasy. The very notion of all Canadian smokers quitting together makes far too much sense to be remotely plausible. Still, there is a tide in the affairs of men which, if taken at the flood, could lead to mass quitting. If you are in the market, and dates are still significant, National Non-Smoking Week runs from January 16 to 22.

cf. today's prices!

— an annual $2,000.00 + 'habit'

the average Canadian user - a pack and a half a day.

Missed boat on smoking

If environmental protection truly begins by protecting the environment, then the Peterson government in Ontario has missed the boat in its new workplace smoking legislation (Give Non-Smokers Room, New Law Tells Employers — July 27).

Today as never before it is clear that smoking is pollution and that indoor smoking especially is atmospheric vandalism. Shame on our Ontario legislators for not acting accordingly.

Their new law virtually endorses continued pollution and penalizes non-polluters. Moreover, it ignores the fact that restaurants, taverns and bingo halls are workplaces for their employees. Shame, shame, shame!

George F. Lewis
Winona, Ont.

SATURDAY, AUGUST 5, 1989

THE GLOBE AND MAIL

FRIDAY, AUGUST 4, 1989

Institute failed to acknowledge nicotine problem

The 30th Institute on Addiction Studies held recently on campus at McMaster is still apparently operating under false pretences. It failed once again to acknowledge, let alone address, the problem of nicotine addiction as Canada's most tenacious and devastating drug problem.

In his town meeting program last year on the legalization of drugs, Ted Koppel tried vainly to put the whole drug issue in perspective. He began by pointing out that cigarette use kills 350,000 Americans each year, a figure now adjusted upward to 390,000 by the U.S. Surgeon General. This catastrophic loss of life he contrasted with the 100,000 annual deaths from alcohol misuse and the 5,000 deaths from illicit drug use.

As a rule of thumb, based on population, we Canadians count our ongoing losses in terms of somewhat over one-tenth of the American estimate.

There is all the more reason for wondering about the Institute's direction and influence when we now know that illicit drug use almost always begins with and accompanies licit drug use. Surely it is wise-up time on the entire drug issue. Unless we include tobacco in our alcohol and other drug concerns, it is game over before we begin.

George F. Lewis,
Assoc. Prof. Anatomy,
Winona.

THE SPECTATOR

The Globe and Mail

SATURDAY, DECEMBER 9, 1989

Two-sided policy

Dr. Andrew Pipe correctly points out that Canadian pharmacists should be ashamed to be seen valiantly assisting us to good health while not so valiantly aiding many of us to destroy it (Why Pharmacists Should Not Sell Smokes — Nov. 23).

What a dangerous display of two-mindedness in regard to Canada's most devastating addictive drug: purveying nicotine in the form of chewing gum by prescription only across their pharmacy counter, while selling it freely in the form of cigarets across their tobacco counter.

George F. Lewis
Winona, Ont.

LETTER TO THE EDITOR

Horrors of smoking there for all to see

In writing of the horror of nicotine addiction (Jan. 31, Feb 7), I am simply pointing out what is there to see — if we know what to look for. It is safe to say, for example, that there is no greater difference between people than the difference between those who use tobacco smoke and those who don't.

Nothing ever before has been so thoroughly researched as the physical effect of inhaling cigarette smoke on the human body. And nothing ever before has been so clearly and so closely linked ~~casually~~ causally to so many highly undesirable consequences.

No other federally approved consumer product is known to kill over 40,000 Canadians every year and cripple hundreds of thousands more. Surely this is tantamount ot legalized genocide performed year in and year out by the tobacco industry and its eager accomplices on Parliament Hill.

Picture the entire population of Stoney Creek, for example, disappearing every 365 days, more than 100 a day courtesy of inhaling cigarette smoke. If this doesn't indicate that Canada's current approach to disaster control needs drastic revision, I don't know what does. At the turn of the century this picture will be the same unless we take aggressive remedial action NOW!

Indeed, the most powerful argument today for legalizing the controlled use of crack-cocaine is the legal status of uncontrolled tobacco use.

George F. Lewis

Medical Prescription
DO NOT INHALE !
Social Prescription
DO NOT EMIT !

king area’ keeps house unpolluted

— Star photo by Brian King

ING GUEST Vince Mazza sits outside to chat with George and Mary Lewis. Non-
es have designated porch as smoking area to keep the air in their home clean.

By MARILYN DUNLOP
Star staff writer

George and Mary Lewis of Winona have designated one part of their home as the “smoking area.” It is the outside porch.

“That may be extreme,” Lewis says. “But we feel if we are going to keep our home in first-class condition with a clean, healthy atmosphere, inside air must be automatically a no-smoking area.”

Lewis, professor of anatomy at McMaster University in Hamilton, thinks a lot of people would like to free their homes of smoke and dirty ashtrays. “But it is rather tricky with your friends.”

Nevertheless, he says, even friends who are heavy smokers have accepted the Lewis’ stand and still visit.

Some of them, he said, say they find it easy not to smoke because inside the home all the things Lewis calls “external cues” have been removed. “There are no ashtrays, no lighters clicking, no smell of smoke in the air, to trigger them into lighting up.”

Social gatherings

An ashtray, says Lewis, is an invitation to smoke. Etiquette books written 30 years ago, he said, called for cigarettes and ashtrays on well-set tables. “But that is now turning around,” he says. “I looked at ashtrays for years as part of the scenery. Now I see that as completely out of step.”

In fact, he says, “Smoking is so much less welcome than it used to be that we’ve attended recently some social gath[illegible]s where smoking would be a real put-down, a sign of not c[illegible]g about others.”

The professor admits many people won’t want to go as far as telling guests to puff outdoors. In some cases, one of the inhabitants smokes heavily. He recalled one woman, almost in tears, who complained about the “sticky tarry film on windows and walls” and the piles of ashtrays she had to clean up each morning, because her husband was a heavy smoker. She blamed her own chest disease on living for years in a home with polluted air.

Lewis said in these cases people might designate one room, such as a den, as the smoking area. “It should be a room that is out of sight and out of smell.”

An air filter—some can remove up to 90 per cent of smoke from the air—can also help, he said. “In an apartment, you can, if you have one, designate the balcony as the smoking area.”

Guests’ reactions

But, he warns, an indoor smoking section can become so smoky, “even the smokers can’t stand it.”

Most guests, he says, prefer to forego their habit or step outside. “We had a houseguest from Ottawa last weekend, a chain smoker, who went out every half-hour or so.”

On the other hand, two women visitors on a recent evening, both heavy smokers, refused to go out, he said. “One said to the other: ‘Do you realize we’ve been here four hours and haven’t smoked? Do you feel any pain?’ The other admitted she did not.”

A lot of smokers, Lewis says, would like to quit. “But they go to a stop-smoking clinic and get revved up and then crumble when they are dropped back into a world with so many [illegible]ing cues.

“Some of them have told us it is nice to visit us because they don’t have to smoke. We feel it is kind to smokers to give them that choice.”

SMOKERS' ETIQUETTE: A MATTER OF COURTESY

(AT HOME, IN THE CAR, IN A RESTAURANT, TAVERN, ETC.
AND IN THE **WORKPLACE**, WHEREVER THAT MAY BE)

WE RECOGNIZE THE GENERAL GROWING AWARENESS THAT SMOKING SERIOUSLY COMPROMISES THE PUBLIC HEALTH, HYGIENE AND COMFORT PROVIDED BY FRESH, CLEAN AIR.

WE DO **CARE** ABOUT THE **AIR** WE **SHARE** - AND WE DO NOT WISH TO THREATEN THE WELL-BEING OF OTHERS BY IMPOSING UPON THEM AN EFFUSION OF SMOKE AGAINST WHICH THEY HAVE NO DEFENCE.

WE REGARD IT THEN AS OUR PARTICULAR RESPONSIBILITY TO PROTECT THE COMMON ATMOSPHERE AND TO ENSURE A HEALTHY ENVIRONMENT HERE FOR ALL WHO SHARE IT WITH US.

WE ACCEPT THAT THE ONUS FOR MAKING THE NECESSARY ADJUSTMENT IS ON US, NOT ON THOSE WHO DO NOT SMOKE, SINCE IT IS WE WHO CREATE THE ISSUE OF SMOKE.

THEREFORE, IN COURTESY, WE WILL NOT SMOKE IN ANY PUBLIC OR SHARED AREA WHERE OTHERS MAY SUFFER PHYSICALLY OR PSYCHICALLY FROM THE PRESENCE OF SMOKE IN THE AIR.

IN NO WAY DO WE REGARD THIS AS AN INFRINGEMENT ON OUR RIGHT TO SMOKE, AND WE WILLINGLY REFRAIN FROM INFRINGING ON THE RIGHTS OF OTHERS IN SUCH A WAY AS TO SUGGEST THAT WE REALLY DON'T CARE.

GEORGE F. LEWIS
ASSOCIATE PROFESSOR OF ANATOMY
MCMASTER UNIVERSITY, HAMILTON, ONTARIO - L8N 3Z5
(416)525-9140, EXT. 2271

and Responsibilities

SMOKERS' RIGHTS ASSOCIATION

We affirm our inalienable right to smoke. In doing so, however, we recognize our duty to protect the rights of others not to smoke or to be exposed to unwanted smoke.

We are aware of what is now known and thought and felt and said about smoking and we ask, therefore, for places to be provided where we may smoke without in any way offending others by the smoke we generate, inhale and emit.

By thus controlling our own smoking behaviour, we will be significantly contributing to the reduction of the peer and environmental pressures which encourage, initiate and trigger smoking, especially in the young.

In courtesy, we will thereby be expressing our concern for the health, comfort and well-being of others and our consideration for their right to breathe smoke-free air in a hygienic environment.

George F. Lewis
Associate Professor - Anatomy
Faculty of Health Sciences (Medicine)
McMaster University Medical Centre
Hamilton, Ontario, Canada

Courier

OWMC
Ontario Waste Management Corporation
Société Ontarienne De Gestion Des Déchets

One in a series
addressing questions related to
hazardous waste management

April 1990

3 n)

Household Hazardous Waste: Issues and Initiatives

For most of human history, waste disposal has meant little more than dumping anything we no longer needed into pits, ditches and sewers. As the volume and complexity of our wastes grew, so did the damaging effects to our environment, particularly to the water quality of our lakes, streams and underground water sources.

The practice of discarding untreated and often hazardous materials without regard to the natural environment resulted from a basic lack of awareness about their damaging effects, and from the mistaken belief that "dilution is the solution". Throughout history, people believed that the atmosphere, the soil or almost any large body of water could absorb an endless amount of waste.

That may have been true when all our wastes were natural, biodegradable substances, but with the Industrial Revolution and particularly after World War Two, the nature of our wastes changed. We began to create unnatural concentrations of potentially hazardous natural substances along with a host of synthetic chemicals that do not biodegrade and are harmful to many forms of life.

As waste volumes and varieties expanded, and as more information about the damaging effects of hazardous wastes became available, concern about environmental contamination began to grow. We are now just beginning to change the way we look at our world and manage its resources.

Traditionally, public attention has focused on industrial wastes. Today we realize that consumers contribute their share as well and that household hazardous wastes are every bit as damaging to the environment as their industrial counterparts. Like industrial hazardous wastes, they must receive proper treatment and disposal.

Although major programs have been developed to reduce and recycle industrial hazardous wastes, initiatives are also being developed to stem the flow of household hazardous wastes into our environment.

Many interest groups are conducting valuable public education programs which encourage consumers to reduce the amount of household hazardous waste they generate. Consumers are learning that they can do their part by switching to non-hazardous or less hazardous commercial products or alternatives such as vinegar, baking soda and a variety of other natural substances.

Manufacturers and retailers are also beginning to offer products that contain fewer hazardous substances or none at all. As well, municipal and provincial governments have implemented voluntary participation programs designed to help control the way we dispose of these wastes.

Without a doubt, public education remains the biggest challenge. For example, consumers have responded well to the popular "blue box" program for recyclable, solid waste materials, but many still lack the understanding or information about what materials can go into the box and what they can do to make the program more effective.

The Problem

Consumers are increasingly aware of the hazardous household substances they use every day. Consisting of everything from old nail polish, batteries and paint wastes to residues of highly caustic cleaners and leftover pesticides, many household products can pose a serious risk to the environment and human health if not managed properly.

Hazardous household products can be **toxic**: poisonous or lethal to humans in small quantities, **flammable**: easily ignited, **corrosive**: highly acidic or caustic, and **reactive**: susceptible to violent reactions. Some household hazardous products are classified as **irritants**: resulting in irritation to the skin, eyes, mucous membranes or respiratory system.

Traditionally, household hazardous wastes have been discarded with very little thought or effort. They have been poured down drains and into sewer systems, burned, or put out with the trash for disposal in municipal landfills.

When dumped down the drain, many of these materials can end up in the environment virtually untreated, because municipal waste water treatment centres are designed specifically to handle sewage, not most synthetic chemicals. When they are allowed to enter a septic tank system or a sewage treatment plant, hazardous synthetic substances can damage or kill the biological systems used to treat the sewage.

If large quantities of household hazardous wastes are incinerated in municipal waste incinerators, they may cause harmful levels of air pollution. Most municipal incinerators are not equipped to handle the destruction of hazardous material safely because they do not burn at a temperature high enough to destroy many problem substances and they may lack adequate scrubber systems to clean the flue gases. As a result, toxic contaminants can be released into the atmosphere.

When put out in the trash, some hazardous household products pose a potential threat to sanitation workers who may be injured when handling them. Some types of household chemical wastes can cause serious burns or respiratory problems.

When the trash is subsequently buried in municipal landfills, (which traditionally have not been engineered to prevent the entry of precipitation and the formation of leachate) the harmful chemicals from the household products behave the same way as their industrial counterparts – they may eventually leach out and could contaminate surface and ground water.

As our population continues to expand and demands for goods and services grow along with it, communities will continue to be confronted with an expanding range of consumer wastes which can be hazardous if not treated and disposed of safely.

On an individual basis, the need for taking special precautions in managing household hazardous wastes may not seem very important, but the collective impact of the hazardous wastes generated by an entire community can be very significant.

Other Jurisdictions

In the United States, several initiatives have been developed regarding the management and disposal of household hazardous waste.

In San Diego, for example, a door-to-door collection program began as a pilot project in 1984. Because costs were high, the city decided to provide the service on a continuing basis only to the elderly and handicapped. A household hazardous waste day program was developed for the general public and a permanent depot has also been established.

In Iowa, retailers who sell household products containing hazardous material must have a permit. Vendors must also participate in a consumer education system, which requires them to post labels next to products containing hazardous materials. They must also have brochures on hand outlining information about the products and their proper disposal. Signs must also be posted near product displays to explain the labels. Signs, labels and consumer information pamphlets are provided by the Iowa Department of Natural Resources.

Further south, Florida has been holding "Amnesty Days" to promote public awareness of hazardous materials and to give residents an opportunity to drop off their household hazardous wastes at designated collection points. The program was implemented because of concern about the damage to Florida's ground water. More than 92 per cent of the state's drinking water is comprised of ground water.

Each year, Amnesty Days cover a portion of the state, so that each area is effectively "blitzed." In addition to serving consumers, Amnesty Days also serve schools, farmers and small businesses.

In Florida, many initiatives are also carried out at the county level. In a number of communities, permanent depots have been established and some areas have organized their own temporary depots. A few of these depots operate on an appointment-only basis.

Many of the initiatives for collecting and managing haz ous wastes originated in Europe. Today, several European countries have collection systems for gathering chemical waste from households and small industries.

In Sweden, for example, a battery collection program has been implemented as a result of concern about the levels of mercury and cadmium in municipal garbage. In the Netherlands, special collection vehicles regularly collect used motor oil, solvents and paints.

Canada

In Canada, initiatives are being implemented at the federal level to give consumers an opportunity to reduce their use of household products containing hazardous ingredients by identifying products which are less harmful to the environment. Under the Environmental Choice Program, environmentally friendly products will be labelled with the "EcoLogo" – three birds entwined to form a maple leaf. The logo indicates that a product has been independently tested and found to be environmentally acceptable.

Guidelines that products must meet to qualify for the logo are currently being developed by the Canadian Standards Association. Guidelines for each product category are dev oped following a study of the product and are available for public review for a 60-day period. After each guideline has been established, manufacturers in the various product categories can apply for the EcoLogo. Product testing and licensing are conducted by the Canadian Standards Association.

The federal government also recently introduced the Environmental Partners Fund, which supports innovative projects that offer immediate results in cleaning and restoring the environment. The fund encourages new approaches to tackling environmental issues and provides funding for up to 50 per cent of a project's total value, to a maximum of $200,000 over a three-year period. Projects required because of existing laws are not eligible for funding. The program is also expected to encourage the development of community programs for the proper management of household hazardous wastes.

Ontario

Presently, there is no legislative framework governing the management and disposal of household hazardous wastes in Ontario at the individual household level – even though the same chemicals, when generated by industries in larger quantities, are subject to stringent regulations requiring special and expensive handling, treatment and disposal procedures. Liquid industrial and hazardous wastes are regulated by Regulation 309 of the Environmental Protection Act, but this does not apply to the small portions generated by individual households.

In the absence of regulations, municipalities have begun to address the issue of proper management of household hazardous wastes on a local basis – with the help and encouragement of the provincial government.

In 1986, the Ontario Ministry of the Environment established a Household Hazardous Waste Collection Program to provide grants to municipalities for collection projects. Under the original program, which expired March 31, 1989, the ministry provided grants to municipalities to arrange and promote special waste days, where temporary depots would be set up to receive household hazardous wastes. The grants for this program covered up to 50 per cent of the operating cost of the project, to a maximum of $10,000 per project, per year.

In 1989, modifications were made to the program to emphasize the link between the level of financial support and the proportion of certain wastes which are recycled or reclaimed. Now community groups and unorganized settlements are also eligible for assistance.

Funding grants are still available for operating these waste days, and for permanent depots as well. Grants for special drop-off days are now limited to 50 per cent of the cost of the project up to a maximum of $5,000. However, this funding can increase by an additional $10,000 per year (for a total of $15,000), or a portion of $10,000 equivalent to the proportion of the volume of latex paint, oil-based paint and motor oil that goes to recycling.

During the 1989-90 fiscal year, the ministry received 64 requests from Ontario municipalities seeking operational funding for household hazardous waste days* and permanent depots. The majority were repeat program users and about 40 per cent were new applicants. This is a sizeable increase from the nine applications the ministry received during the first year of the program.

Funding assistance for setting up permanent household hazardous waste depots is also available through the Ontario Ministry of the Environment's Financial Assistance Program (FAP). Under the program, aid is provided to municipalities to implement new waste management facilities or to expand existing landfill sites or transfer stations to handle household hazardous waste. This assistance is for capital expenditures only.

Under FAP, funding is committed for a period of up to five-years, based on a funding structure tied to the size of the municipal population served.

Many communities are beginning to favor permanent depots over household hazardous waste drop-off days, because they are more cost-effective. Traditionally, household hazardous waste days receive a turnout of about two per cent of the population of the area serviced.

Permanent depots provide an opportunity for residents to drop off their household hazardous wastes at their leisure, instead of being restricted to special occasions held just once or twice a year. Permanent depots can also help consumers reduce the amount of hazardous materials stored in their homes because they don't have to wait an entire year to dispose of their accumulated wastes.

To help consumers choose safer alternatives, the Ontario Waste Management Corporation has produced an "ENVIRO•DIAL" which lists alternatives for many common household hazardous products. To obtain a copy, call OWMC.

The Metropolitan Toronto Works Department currently operates 10 permanent depots where residents from Metro Toronto, and the regions of York and Durham can drop off their household hazardous wastes. Eight depots are located at existing solid waste management facilities (transfer stations) while two are located at landfill sites in Maple and Pickering. In 1989, some 6,182 people used these depots.

Operated year-round, most depots are open Saturday mornings while the two in Pickering and Maple are open from Monday to Friday as well. Due to the interest in these depots, a proposal has been made for each depot within Metro to operate for an additional day during the week.

The Metro Toronto Works Department also operates a "Toxics Taxi" (a van) which is available free-of-charge to pick up hazardous household materials from homes in the Metro area. To qualify for a pickup, residents must have at least 10 litres (about 2.5 gallons) of hazardous material, and must be at home when the taxi arrives because, according to the Works Department, these types of wastes cannot be left outdoors unattended.

The service began as a trial program in 1989 and has been very successful. The taxi makes 10 to 12 pickups a day and operates in one municipality per day to make the service both time and cost-effective. More than 1,600 people have used the service and additional taxis may be added soon. A total of 213 tonnes of household hazardous waste were collected in 1989 at the depots and by the Toxics Taxi.

Durham Region has also started a similar service which it calls the "Toxic Taxi." This service will operate first as a pilot project in the Township of Uxbridge and pickups are scheduled to begin in May, 1990. The remainder of the region is scheduled to be covered by the end of the year. Unlike the service in Metro Toronto, there is no minimum quantity requirement, and the collection program is expected to operate about twice a year in each of the eight municipalities within the region. Pickups will be booked in advance and residents will have to be present at the time of the pickup.

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*Household Hazardous Waste Program grant recipients must apply for a Certificate of Approval to operate a hazardous waste collection/transfer site, and must register as a waste generator under Regulation 309. Wastes collected must be transported by licenced carriers to approved facilities for recycling or disposal.

In nearby Peel Region, a permanent household hazardous waste transfer facility has been operating since December, 1987. Open four days during the week, the facility continues to collect wastes from area residents. There are also plans to have a paint exchange set up in May, 1990 and a second depot has been approved and is expected to begin operation later in the year. In addition to these services, Peel Region operates a "Wasteline" telephone service which provides answers to questions from interested consumers.

The Future

The introduction of more stringent regulations, coupled with innovative collection methods could encourage greater public participation in future collection efforts.

One innovative idea that has been proposed as a community initiative is a return-to-vendor program which would require householders to deliver their wastes to specified vendors (similar to the method for returning pop bottles). The materials would be picked up later for recycling and/or treatment by a recycling or disposal company. A return deposit for these materials would also give consumers an extra incentive to participate in such a collection program.

A curbside pickup service is another alternative that has been considered, but this may not prove prudent because curious children and pets could be harmed by unattended hazardous materials. However, the use of child-proof lockable curbside boxes is a more attractive option that has been proposed.

Although many initiatives to curb and manage the amoun[illegible] household hazardous waste we generate and send for disposal have been proposed, the battle is far from over. We have only just touched "the tip of the iceberg," and ongoing public education is essential to increase the current level of awareness and concern.

While special waste collection services are helping to diminish the problems caused by indiscriminate disposal of household hazardous wastes, they don't attack the issue at its source. In addition, the province of Ontario still lacks sufficient treatment and disposal facilities to handle the huge volumes of industrial and household hazardous waste. The Ontario Waste Management Corporation has proposed a treatment and disposal facility for a site in the Township of West Lincoln which will handle all types of hazardous waste generated across the province. The proposal is currently undergoing a hearing under the Consolidated Hearings Act. If approved, the facility will provide the additional treatment and disposal service needed to help alleviate the problem.

Consumers, however, must learn that reducing their purchases of products containing hazardous materials is a far more effective way of tackling the problem. Once consumers make a conscious effort to combine their lifestyles with a broadened environmental awareness, manufacturers will respond and offer a wider range of safer products to choose from. The potential benefits from responsible management of hazardous mater[illegible] and the potential environmental damage from mismanagement are too important to ignore.

OWMC
Ontario Waste Management Corporation
Société Ontarienne De Gestion Des Déchets

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Ontario Waste Management Corporation welcomes letters of comment. Address correspondence to:

Hal Miettinen
Co-ordinator,
Communication Programs
Ontario Waste Management Corporation
2 Bloor Street West, 11th Floor
Toronto, Ontario M4W 3E2
Call OWMC toll-free at
1-800-268-1179
or 923-2918 in Toronto

Residents of the Niagara Region may also address correspondence to:

Leslie Daniels
Co-ordinator,
Regional Communications
OWMC Regional Office
Village Square Mall
Highway 20 & Industrial Road
Smithville, Ontario L0R 2A0
Call the OWMC Regional Office toll-free at 1-800-668-9410 or
(416) 957-2367
Office hours are 9:00 a.m. to 5:00 p.m., Monday to Friday

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METROPOLITAN WORKS DEPARTMENT

March 28, 1990

To: Metropolitan Works Committee

From: Commissioner of Works

Subject: Organic Yard Waste Composting

Recommendations:

It is recommended that:

(1) Metropolitan Council formally request the City of Scarborough Council to reconsider its previous resolution and authorize the Metropolitan Corporation to establish and carry out leaf and yard waste composting operations at the former Beare Road Landfill Site;

(2) authority be granted to undertake a series of promotional activities to inform the residents of Metropolitan Toronto about the yard waste composting program and the requirement that residents only use clear plastic bags, at an estimated amount not to exceed $30,000.00;

(3) authority be granted to pay the costs to be incurred by the Area Municipalities in promoting and advertising the local requirements of the yard waste program, at an estimated total amount not to exceed $30,000.00, apportioned on a per capita basis, subject to the provision by the area municipalities of a detailed budget of their proposed promotional activities; and

(4) to require that it be a condition of our funding that the Area Municipalities acknowledge the contribution of the Metropolitan Corporation in all promotions, vehicles, etc., related to the program by displaying the Metropolitan Toronto logo wherever possible.

Background:

On June 7, 1989, Metropolitan Council approved Clause No. 8 of Report No. 11 of the Works Committee, one of the recommendations being to "request one or more of the Area Municipalities to establish a pilot program for the collection of organic yard waste, for composting at Metropolitan Toronto operated or their own compost sites"

A pilot program was carried out from August 3, 1989 to September 22, 1989 (7 weeks). A targeted number of households from the City of Toronto and the Town of Vaughan were each given 2 packages of 5 clear plastic bags, supplied free by First Brands (Canada) Corporation, along with a pamphlet describing the program. The program was restricted to the collection of leaves, grass clippings, brush, plant cuttings, and hedge trimmings and excluded any garden or household fruits and vegetables. One of the conditions in our Certificate of Approval from the Ministry of the Environment for our composting operations at the Avondale composting site is that waste fruits and vegetables shall not be included, to avert the possibility of contamination in the resulting compost with disease bearing organisms which, in the future, might result in detrimental effects on the plantings on which it was used.

The following table summarizes the collection details of the pilot program:

	Quantity Collected	Households Targeted	Kg. per Household Per Week
City of Toronto	16,920 kg.	1,950	1.24
Town of Vaughan	15,820 kg	500	4.51
TOTAL	32,740 kg.	2,450	1.91

It was estimated by visual inspection that approximately 75 per cent. of the quantity collected was grass clippings with the remainder consisting of other trimmings and larger shrubs. The grass exhibited an offensive odour due to the commencement of the decaying process, even as early as on the day of delivery. The plastic bags used in the collection program were made available to First Brands for recycling.

At its meeting of January 24, 1990, Metropolitan Works Committee received a communication from the City of Toronto Clerk forwarding a copy of Clause No. 38 of Report No. 1 of the City Services Committee which was adopted without amendment by City Council on January 8 and 9, 1990, recommending that a City-wide organic waste collection program for composting be carried out between the months of May and September 1990, and that the Metropolitan Corporation be requested to secure and operate an adequate composting site to compost the organic yard waste collected by City of Toronto forces.

The other five Area Municipalities will also be operating separate organic yard waste collections from residents for composting in 1990. Collections in these municipalities will be limited to certain days in the month of May. Specifically, collections in the City of Etobicoke will be on designated days during the weeks of May 14 to May 18 and May 28 to June 1, 1990, on one or both of the regular mixed waste collection days. The City of North York will be collecting yard waste on Wednesdays from May 9 to May 30, inclusive. The Cities of Scarborough and York, and the Borough of East York will each have collections on May 16 and 30.

Residents in Metropolitan Toronto will be requested to put their organic yard wastes such as leaves, grass clippings, plant cuttings and weeds into regular clear plastic bags for separate collection. Residents will also be asked to bundle larger materials such as brush and hedge clippings beside the clear plastic bag, for chipping.

It is proposed that the supply of clear plastic bags be left for the public to purchase in the marketplace, similar to the leaf collection program operated last fall. We are writing the plastic bag manufacturers in the Metropolitan Toronto area, including the manufacturers who supplied bags for the 1989 leaf program, advising of our intention to operate a yard waste collection and composting program this year in addition to the leaf program. It is our hope that we can standardize plastic bags with respect to size and clear type and eliminate from the marketplace some other types and sizes that have no assigned applications for waste reduction. The manufacturers have advised that each will maintain contact with the retail trade to ensure that a stable supply of clear bags is available. Our decision to leave the supply and distribution of clear plastic bags in the marketplace as opposed to other alternatives is the subject of a separate report. We are considering a coupon with our advertisement in 1990, whereby the purchaser of bags could get a price reduction from the bag manufacturers.

Based on the results of the pilot yard waste programs operated in the City of Toronto and the Town of Vaughan in 1989, it is estimated that in 1990, up to 6,000 tonnes of yard waste could be diverted from the waste stream and composted.

All of the Area Municipalities, except the City of North York, have requested Metropolitan Toronto to compost the organic yard wastes that are collected through their programs. The City of North York will be composting the estimated 1,000 tonnes of yard waste expected to be collected by their forces at its existing municipal composting sites. Metropolitan Toronto would therefore be required to compost the remaining 5,000 tonnes.

Our existing 20 acre leaf and yard waste composting site on the Avondale property near the Keele Valley Landfill site has a capacity of approximately 20,000 tonnes. Approximately 12,000 tonnes of leaves collected by the Cities of Scarborough, Toronto, York, and the Borough of East York in 1989 are currently being composted at the site. We can therefore accommodate the estimated 5,000 tonnes of yard waste expected to be delivered to the site this spring and summer. We will also have to accept a quantity of yard waste collected by area municipalities within the Region of York, as part of their conditions for approving the composting operation at Avondale. It is anticipated that the leaves currently at the site and the yard waste will be fully composted and removed in order to receive and compost the leaves that will be delivered in the fall of 1990.

It is a possibility that for the 1990 leaf season, more than 20,000 tonnes of leaves could be collected by some of the Area Municipalities that deliver leaves to Metropolitan Toronto for composting, which could necessitate the need for another composting site. While the 1989 program was a success, there were some minor problems such as a temporary shortage of bags in the marketplace, which could have negatively affected the total tonnage collected. With the public and the retail trade and plastic bag manufacturers now being more aware of the details of the program, a significant increase in the tonnage of leaves recovered may occur in 1990.

In 1989, we investigated the use of a number of sites that would be suitable for a composting operation. One site in particular, located on lands adjacent to the former Beare Road Landfill, was found to be optimal in terms of usable acreage, topography and location. We requested permission from the City of Scarborough to use land at the Beare Road site currently owned by the Metropolitan and Region Conservation Authority (M.T.R.C.A.), for a leaf and yard waste composting operation. While we did receive staff approval from the M.T.R.C.A. to lease the land, Scarborough Council refused our request for their approval of the use of the site for composting.

These separate collections for composting cannot be sustained and expanded if we do not have adequate sites at which to perform the composting. The Town of Vaughan has given approval for the use of our Avondale property near the Keele Valley Landfill site, however, we urgently need at least a second site. It is therefore recommended that Metropolitan Toronto Council formally request the Council of the City of Scarborough to reconsider its previous resolution and allow the Metropolitan Corporation to establish and carry out municipal composting operations at the former Beare Road Landfill Site.

Public education and promotion of the yard waste program is crucial to maximize diversion rates and to inform the public on the details and requirements of the program. It is proposed that Metropolitan Toronto implement a series of newspaper advertisements and a press release to promote the program, at an estimated cost not to exceed $30,000.00. Included in this promotion campaign will be a message to residents to compost as much of their yard waste as possible and put out only the excess for municipal collection.

The Area Municipalities are also required to promote the yard waste program to inform their residents about the specific details of the program. Such activities would include advertisements in local newspapers, press releases and public service announcements. It is recommended that Metropolitan Toronto pay the costs of these activities, at an estimated amount not to exceed $30,000.00, apportioned on a per capita basis.

Funds for the promotion are available in the Current 1990 Recycling Budget of the Solid Waste Management Division.

It should be noted that municipal composting is not the only method for managing grass clippings, the major portion of yard waste, as explained in the attached article "Disposal of Grass Clippings." We will be implementing a campaign in the near future to encourage homeowners to reduce the amount of grass clippings generated for disposal by adopting a more optimal fertilizing, watering and mowing schedule. Grass clippings that are produced can be left on the lawn to return nutrients to the soil, used as a garden mulch, or composted in the backyard.

R.G. Ferguson - Commissioner

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A FRAMEWORK FOR DISCUSSION ON THE ENVIRONMENT

The Green Plan
A NATIONAL CHALLENGE

Canada

" Your destiny is a mystery to us. What will happen when the buffaloes are all slaughtered? And what is it to say goodbye to the swift pony and the hunt? The end of living and the beginning of survival.

"We love this earth as a newborn loves its mother's heartbeat. Care for it as we have cared for it. Hold in your mind the memory of the land. Preserve the land for all children and love it."

Chief Seattle,
in a letter to the
President of the United States, 1852.

" The ozone layer has a hole, our water is polluted, our forests are disappearing, and the animals are also affected by this pollution. We would like to save our planet, if that is possible."

Aaron Meyers,
age 10,
Montreal.

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the Minister of the Environment

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Introduction

Since the mid-1980s, Canada has taken the leadership in the definition and the application of sustainable development. In the 1990s, the Government of Canada is determined to consolidate this leadership role in the field of environment. Ultimately, our goal is to unite Canadians in a great common cause:

To make Canada, by the year 2000, the industrial world's most environmentally friendly country.

To reach this objective, we believe that:

- the Government of Canada must lead by example;
- sustainable development depends on individual Canadians changing their behaviour as it affects the environment;
- a healthy environment and a strong economy must be recognized as being mutually dependent;
- environmental action must be undertaken in a fiscally responsible manner;
- public policy must be developed and implemented on the basis of full consultation and partnership with those affected;
- innovative science and technology must be supported.

In the following pages, we propose concrete measures to reach our objective. The reflection and discussion which this document invites will influence the order of priority in the Government's action plan *(The Green Plan: A National Challenge)* which will be released before the end of the year.

I hope we will reach an early consensus on the key elements of this action plan. Like many Canadians, I am impatient to act — to make up for the decades of environmental oversight.

We are now at a critical stage of Canada's evolution toward sustainable development. We owe our thanks to many partners who have helped us reach this point. I hope they will speak out clearly in the dialogue which we are now beginning. I thank them for their support. I am now calling on all Canadians to join us in this great social commitment to ensure for our children the future that they have a right to expect — a future in harmony with a restored natural environment.

Lucien Bouchard
Minister of the Environment

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Preface

Later this year, the Government of Canada will release *The Green Plan: A National Challenge*. It will inform Canadians about the most serious environmental problems they face in the coming years and will describe some of the programs, laws and other actions the Government will implement in order to address those problems. The plan will also describe the vital role private sector groups and individuals must play if we are to reverse years of environmental abuse and prevent future environmental degradation.

However, if *The Green Plan* is to succeed, it must take into account the concerns of interested Canadians. In order to ensure that all those who have views are given the opportunity to express them, the Government of Canada is holding a series of consultations across the country, beginning this spring. This document, *Framework for Discussion on the Environment*, summarizes the issues that will be addressed in *The Green Plan*. It also outlines specific environmental problems and explores options for dealing with them.

The *Framework* sets out possible — not preferred — solutions. It is meant to stimulate ideas, not to foreclose debate.

A reading of this document will make it clear, however, that the Government of Canada has a specific goal in mind. That goal is to ensure that the activities of businesses, individuals, communities and government are consistent with the concept of sustainable development.

The idea of sustainable development was first articulated by the World Commission on Environment and Development (the Brundtland Commission), a body sponsored by the United Nations, which presented its report in 1987. Sustainable development holds that the world must pursue "development which meets the needs of the present generation without compromising the ability of future generations to meet their own needs". In other words, despite the serious environmental problems we face, the challenge can be met.

One of the toughest problems in dealing with the environment is the degree to which it is an integrated system — a delicate whole in which a change to one part affects all the others. This makes it difficult to set priorities for environmental action. Environmental problems do not easily lend themselves to that kind of ranking. If, for example, water pollution were to be the first issue tackled, what would happen to initiatives to deal with air pollution, which is itself a primary source of pollutants in water?

Notwithstanding these difficulties, it is clear that priorities must be set. One of the key purposes of the *Framework* is to canvass the views of Canadians as to what those priorities should be.

That is not to say that there are no priorities in what you are about to read. There are. The Government of Canada believes that today's environmental problems are the result of the failure of Canadians at all levels of society — as individuals, in their business lives, and through our political institutions — to make decisions that fully take the environment into account. This failure is not one of willful irresponsibility. Indeed, Canadians have increasingly expressed their concern about environmental issues and have, over time, demonstrated a willingness to take concrete action to address them. The challenge is to integrate environmental considerations into decision-making in a more systematic, focused and co-ordinated way. The Government's first priority, therefore, is to help change the way decisions are made at all levels of society.

In the past, choices were often made without adequate knowledge or understanding of the ways in which economic development affects the environment. Therefore, the Government believes that strengthening the foundations of decision-making should be a priority. Through better science, technology, education, and dissemination of information, and through the appropriate use of regulation and economic incentives, improved decision-making will result. In turn, this will mean more effective solutions to the environmental concerns of Canadians.

In distributing this *Framework for Discussion on the Environment* and in holding meetings with interested groups and individuals, the Government is looking for clear responses to specific environmental issues. Discussions should tell us all — government and citizens — whether Canadians are prepared to make — and to have their governments make — the tough decisions necessary if sustainable development is to be a workable reality for Canada.

This discussion paper is divided into three sections. Section one provides a statement of the challenge, in both its global and domestic dimensions. Section two offers a long-term policy strategy for moving toward sustainable development in Canada, emphasizing the need for better decision-making. Section three addresses the environmental issues and related health concerns uppermost in the minds of Canadians, including toxic substances, environmental emergencies, atmospheric change and water quality.

Understanding the Challenge

INTRODUCTION

A thinning ozone layer; the threat of climatic disruption on a global scale; toxic chemicals in the air and in our water; dramatic environmental emergencies that capture our attention and arouse our indignation; the disappearance of plant and wildlife species that are the fundamental biological resources of our planet — these are the symptoms of the global environmental problems that increasingly preoccupy Canadians.

These problems lead us to fear for our own health and that of our children. They cause us to wonder whether the planet we pass on to future generations will be worth inhabiting. They make us question whether the material standard of living we have worked so hard to achieve can be sustained for ourselves and our descendants and shared with the majority of the world that still lives in poverty.

GLOBAL SCOPE

Our planet sustains life through a delicate and intricate web of ecological systems. People are a product of the environment, a participant in its evolution and a significant factor in its present character. Every litre of gasoline we burn, every tonne of ore we mine and transform through industrial technology, and every crop we sow and harvest affects the environment in some way. All of the world's inhabitants share the global ecosystem — an interdependence that makes environmental problems and solutions the joint concern of all nations.

The activities of an ever-growing number of human beings impose steadily heavier burdens on environmental resources:

- World economic activity has increased 20-fold since 1900.
- World population increased from 2.5 billion in 1950 to 5.2 billion today, and will double again by 2050.
- Global industrial production currently increases each year by an amount equal to the total production of Europe in the 1930s.
- Our current consumption of fossil fuels is 30 times greater than it was in 1900; most of this increase has taken place since 1950.
- More land has been cleared for cultivation in the last 100 years than in all preceding human history.
- Global water use doubled between 1940 and 1980 and is expected to double again by the year 2000.

Beyond the use of environmental resources, however, are the unprecedented physical, chemical and biological stresses that result directly from human activities:

- Our annual consumption of fossil fuels is about a million years' worth of nature's production.
- We currently unleash more than 15 billion tonnes of carbon dioxide annually into the atmosphere, up from 1.5 billion tonnes in 1900.
- If clearing continues at the present rate, the South American rain forest will be gone in less than 30 years.
- It is estimated that plant or animal species become naturally extinct at the average of one a year. Today the rate is one a day.

THE FIGHT AGAINST POVERTY: AN ENVIROMENTAL IMPERATIVE

In the poorest countries, economic problems are frequently both a symptom and a cause of environmental degradation. Economic necessity leads to overgrazing and deforestation, reducing the productivity of land and soil, increasing the frequency of floods and droughts, causing greater poverty and deeper despair. The poorest become trapped in a downward cycle of rapid population growth, environmental degradation and falling economic standards. Unable to grow economically because of the pressure of population, many developing countries find population control difficult because they lack the benefits and social services that are possible in a sound economy.

The infrastructure necessary to provide running water and sewage disposal for individual households is simply beyond the capacity of the majority of developing countries. Many in the early stages of development use inexpensive but outdated industrial technology that may be wasteful of resources and produce very high levels of pollution.

The Brundtland Commission said that a five- to ten-fold increase in economic activity would be necessary to achieve reasonable standards of living for the majority of the world's population that lives in poverty. Yet the diminishing pool of environmental capital that characterizes the world ecosphere will simply not support the resource-hungry road to prosperity already taken by countries like ours.

The great challenge of the 21st century will be to accommodate the legitimate economic aspirations of the world's population while remaining within the limits imposed by the global ecosphere. Hard questions, difficult choices — answerable ultimately in a global context — these are the fundamental realities of the debate on environmental policy that will dominate the 1990s.

Can we, in fact, succeed in achieving development that meets the needs of today without compromising the opportunities available in the future? Sustainable development will require new ways of thinking and new institutions that recognize the global nature of environmental problems. It will require a conscious change in philosophy and action unprecedented in human history. Unlike the spontaneous and largely unconscious agricultural and industrial revolutions of more environmentally naive times, sustainable development will be a matter of forethought and planning at every level.

CANADIAN DIMENSIONS

In both material and environmental terms, Canadians are enormously wealthy by comparison with much of the world. Nature has provided us with an abundance of natural resources that support a very high standard of living. Moreover, relative to our small population, we have an enormous endowment of environmental resources — large open spaces, huge forests, innumerable lakes and rivers, vast coastlines and oceans.

- We are responsible for nine per cent of the planet's renewable water supply.

- Forty-nine per cent of the total Canadian land mass is forested, accounting for ten per cent of the world's forest resources.

- Canada is the world's third-largest producer of minerals, with annual production worth $21.6 billion.

Much of Canada's material well-being is based on its endowment of renewable and non-renewable natural resources. Resource industries are a significant factor in the Canadian economy. More than four million people — one in every three working Canadians — are employed in our five main resource-based industries: agriculture, forestry, fishing, mining and energy. Forestry, fishing and energy, in particular, are major export industries and the basis of substantial foreign exchange.

Our resource wealth has driven the evolution of the Canadian economy.

- Canadians are the heaviest users of energy on a per capita basis in the world, partly because of our long distances and cold climate, but also because we grew up as a nation assuming that the natural environment was virtually inexhaustible.
- In the process of burning fossil fuels, Canadians are the world's fourth-largest producers of carbon dioxide on a per capita basis.
- The average Canadian produces almost two kg of solid waste per day, more than any other citizen in the world, yet less than ten per cent of Canada's solid waste is recycled.
- A Canadian family of five produces, on average, more than 2,000 litres of wastewater each day.

Canadian governments, businesses and individuals have not been indifferent to environmental issues. Working together, we have enjoyed some notable successes. In summer, volunteers — some of grade school age — band together to clean up rivers and to plant trees. Volunteer organizations are rehabilitating wildlife habitats and helping to reintroduce wildlife species to renewed areas. The runaway success of community-based Blue Box recycling programs and the increased interest in community composting projects show how ready Canadians are to make sound environmental decisions, and to act to stop environmental degradation.

Many Canadian farmers are making greater efforts to adopt production and waste management practices that will prevent contamination of surface water and groundwater. Some farm operations are also encouraging soil conservation.

In addition, many businesses and associations have recognized the need to adopt codes of practice and decision-making methods that formally recognize their environmental responsibilities. For example, there is the Responsible Care program of the Canadian Chemical Producers Association and the Environmental Code of Practice of the Canadian Petroleum Association.

In June 1988, the Government of Canada passed the Canadian Environmental Protection Act (CEPA) in order to protect the environment and to safeguard Canadians against toxic substances. Under CEPA, toxic compounds are controlled from development and production, through transportation, distribution and usage, to ultimate disposal.

Federal and provincial governments have been co-operating to regulate the quality of the air in urban centres: federal/provincial agreements have been implemented; regulations and guidelines have been put into place. The results have been impressive: lead in gasoline is being phased out; automobile emissions have been regulated; and federal/provincial agreements on acid rain have reduced Canada's emissions of sulphur dioxides. As a consequence of all those efforts, the presence of five major air pollutants has been drastically reduced in the air of Canada's cities: concentrations of sulphur dioxide, nitrogen dioxide, carbon monoxide, suspended particulates and lead have declined by 40 to 60 per cent.

These efforts have involved millions of individual Canadians, many Canadian businesses, and Canada's federal, provincial and territorial governments. They have often involved years of careful scientific effort, detailed consultations and the painstaking development of remedial measures. Yet the symptoms of environmental degradation continue and multiply. As conventional air pollutants are reduced, science discovers the importance of ground-level ozone in determining urban air quality. More recently, advances in measurement technology have shown how industrial airborne toxic chemicals can lead to chemical contamination of the food chain in Canada's once pristine Arctic — and add to stubborn pollution problems in the Great Lakes and the St. Lawrence.

Clearly, we are going to have to change some of our most deeply ingrained assumptions and habits if we are to live up to our responsibilities as stewards of a large portion of the world's environment, and continue to enjoy the quality of life to which we have become accustomed.

We cannot afford the costly react-and-cure approach to dealing with environmental problems — problems that are becoming more complex and pervasive and more difficult and expensive to clean up after the fact. Nor can we any longer afford to ignore environmental considerations in properly assessing our economic performance. Environmental degradation and mismanagement of our environmental resources impose social and economic costs.

But let us be clear. Canadians will face some difficult choices. People are likely to see the costs of environmental protection reflected in higher prices and, perhaps, regional dislocation as some plants are closed in response to more stringent environmental safeguards. These costs will be offset by improvements in the quality of our air, water and, ultimately, in human health. Moreover, new economic opportunities will be provided by a growing environmental industry sector— opportunities that Canada must explore, given the challenges of an increasingly integrated and more competitive world economy. The Government believes that, in the final analysis, the economy will experience net gains as a result of integrating environmental considerations into decision-making.

Improving Decision-Making

THE BASIS FOR ACTION

We face environmental challenges because we have closed our eyes on the bill to be paid for the ravages caused by pollution, the depletion of natural resources, and the destruction of our ecological heritage. If we are to achieve sustainable development, we must understand that the origins of environmental problems can be found in the way we make decisions, at all levels of society. It is the countless day-to-day choices made by individual Canadians, acting alone or within business, government and other organizations, that shape the economy of our country. In turn, the flow of energy, materials and waste set in motion by these decisions determines the impact of our actions on the natural world and, ultimately, on our own health and well-being.

Implementing sustainable development in Canada will require fundamental changes in the way we make decisions:

- as individuals, managing households and choosing lifestyles;
- in our working lives, making choices about production processes, energy use, waste disposal and packaging, and
- through our elected governments, in setting the rules for economic activity and environmental management and in pursuing and responding to a complex international environmental agenda.

Our decisions must reflect the true value of our scarce environmental resources and the fragile ecosystem on which we depend for our health and well-being. That is what "sustainable development" is about — changing the way we see the environment and its relationship to our activities.

THREE STEPS TO CHANGING DECISION-MAKING

There are three basic steps to correcting existing failures in decision-making. First, we must *improve the factors* that affect decision-making. Second, we must change decision-making *processes and institutions*. Third, we need to strengthen and build *partnerships*. Such changes are crucial if we are to meet successfully the challenges posed by problems that transcend geographical and political boundaries.

Factors that Affect Decision-Making

There are five key factors that will lead us to better decision-making.

1. Better Science

Good science is essential for good environmental policy and sound regulation. Environmental science encompasses both the social and physical sciences and includes fundamental research, applied research, monitoring and development of new technologies. Carried out by governments, universities and the private sector, science helps us measure progress and identify new problems. It also offers economic opportunities by helping to develop new industries.

The Government proposes to increase significantly its commitment to environmental science and technology.

There is a need within all levels of government for more environmental science in support of their legislative and stewardship responsibilities, particularly as they relate to such priority issues as environmental health, toxicology, agriculture, fisheries and forestry, and water and air pollution.

The Government also recognizes that, to promote better science and technology, it must work with its partners: other governments, the private sector, universities and colleges.

Accordingly, the Government will promote co-operative environmental science efforts. For example, a federal government panel, similar to the existing Panel on Energy Research and Development, is being considered to identify priorities and mobilize public and private sector resources.

The Government is also considering a new program, to be administered by the three national granting councils (Natural Sciences and Engineering Research Council, Social Sciences and Humanities Research Council, Medical Research Council), to promote fundamental environmental research at Canadian universities. Consideration may be given to other mechanisms to encourage new and innovative research, for example, to a program for funding research proposals originating from outside the Government.

Commercially attractive environmental technologies are essential to solving environmental problems. However, there may be market impediments to commercialization. Often, for example, the returns on such investments are too risky to attract private investors.

The Government will put in place mechanisms to promote the demonstration and commercialization of environmental technologies. One possibility is a government/private sector, cost-shared technology demonstration fund.

Co-operative international scientific efforts need to be expanded to provide a sound basis for developing global solutions. The Government has identified a number of priority areas for the next five years, including toxicology, climate change, ozone layer depletion and acid rain.

2. More Information about the Environment

Good decisions require good information. Canadians want to receive information about the environment in the same systematic manner they receive information about the economy. Good information is essential if we are to avoid a short-term crisis mentality and focus on long-term management of the environment. Environmental reporting — the timely delivery of environmental information in a form readily understood by all — provides objective data on which decisions can be based and on which the decisions of others can be evaluated.

The Government is committed to improving the technical quality, consistency, reliability and public accessibility of environmental information. Environmental reporting, however, is at an embryonic stage, with basic work still to be done to develop better data bases and improved methods of presenting information.

Accordingly, the Government is considering how best to organize its efforts and to work co-operatively with other governments, the private sector and other groups.

Canada has taken a leading role in extending national economic accounting to incorporate environmental concerns, using Environmental Satellite National Accounts.

To further develop satellite accounts, the Government will launch a pilot project and take part in work under way with the World Bank and other international organizations.

The Government of Canada provides Canadians with a detailed state-of-the-environment report every five years. The next report will be published in 1991.

The Government will supplement the five-year reports with less detailed but more frequent reporting: for example, an annual environmental outlook and policy statement.

Environmental information must be readily accessible to all Canadians. The Government is considering a number of options to meet this need, including a national environmental library. This might consist of a publicly accessible referral system, a central data base system and a regionalized computerized information network.

3. Education

A third requirement for good decision-making is better environmental education, helping to translate environmental awareness into action. The object is to create an environmentally educated population which will demand that all sectors of society meet a high level of environmental responsibility. Education will also help develop the skilled workforce required to understand and resolve the complex issues confronting it. There are many opportunities to increase environmental literacy, both formally, through the school system, and informally, in the community, the workplace and elsewhere.

The Government recognizes that it must co-operate with the provinces to establish priorities for action in environmental education. How can governments best work together to identify priorities and address needs?

Communities, non-governmental organizations, and the private sector can play an important role in environmental education. The federal government's Environmental Partners Fund has been successful in promoting co-operative community-based efforts to clean up the local environment. Similar programs could be established to promote local environmental education initiatives.

4. Legislation and Regulation

The Government believes that effective laws, vigorously enforced, are needed to protect public health and environmental resources. Legislative and regulatory instruments set rules regarding the use of, and access to, the environment. The purpose of these rules is to ensure that environmental factors are considered in decision-making. They do so through prohibition, standards, guidelines, permits and the like.

The Government believes that, despite recent and ongoing federal legislative initiatives — most notably the Canadian Environmental Protection Act and the proposed Canadian Environmental Assessment Act — there are still important gaps in the Government's environmental legislation, particularly in regard to protecting wildlife, assuring the safety of drinking water and responding to concerns about pesticides. The Government also intends to strengthen the regulatory provisions of existing acts. These are discussed in more detail in the next section of this paper.

There is a growing concern about the adequacy and consistency of enforcement of Canadian environmental laws. With respect to consistency of regulation, the Government is committed to defining with the provinces the distribution of roles and responsibilities in accordance with CEPA. The establishment of a co-operative national training program for enforcement officers is being considered.

The Government is also committed to strengthening its enforcement capability. Should the Government emphasize compliance (i.e., advising firms on how to meet requirements) or enforcement (i.e., inspecting and initiating legal actions as required)?

The federal government has established a regulation development process that includes pre-notification of regulations under development and public consultation.

Some Canadians are concerned about the process, its accessibility and its length. How can regulatory procedures be clarified and streamlined?

5. Economic Instruments

Economic instruments that reflect environmental costs will encourage decision-makers to take the environmental consequences of their actions into account. Possible measures include effluent taxes, tradeable emission rights, deposit/refund systems and user charges. Sustainable development, with its focus on anticipating and preventing environmental degradation before it occurs, means increased emphasis on appropriate resource pricing and economic instruments to achieve environmental objectives. Used properly, these can ensure that the environment is more fully considered in production and consumption decisions made at all levels of society.

The Government believes that economic instruments can be an effective complement to, and in some cases a substitute for, environmental regulation. However, given limited experience in Canada and other countries with such instruments, the Government believes that further work is needed to assess fully the merits of using economic instruments in pursuit of environmental objectives.

Following the release of* The Green Plan, *the Government intends to initiate a detailed discussion of the advantages and disadvantages of economic instruments, involving individuals, environmental non-governmental organizations (ENGOs), business and the university community.

Further, there may be a need for a special program to stimulate applied research into the application of economic instruments to environmental problems — perhaps through a specialized university network.

Changing Decision-Making Processes

It is not enough to improve the quality and availability of factors that affect decision-making. The existing structures, institutions and processes that use information must also be changed. Environmental considerations must be formally recognized as essential decision-making criteria within government and private sector organizations.

Governments have two major decision-making roles: as businesses and as policy-makers. Considered as businesses, they are among the largest employers and economic agents in Canada. Their day-to-day decisions on such matters as procurement can have a significant impact on the environment.

More important, as policy-making bodies, governments establish the rules that influence the way citizens make use of environmental resources and help determine the nature, location and extent of economic activity.

The Government of Canada has introduced a number of reforms in its policy-making process to achieve a better integration of environmental and economic considerations. For example, it recently created a new Cabinet Committee on the Environment and it established a National Round Table on the Environment and the Economy.

The Government will table this spring legislation to strengthen application of the federal Environmental Assessment and Review Process (EARP). In accordance with the new law, the Government will not approve, without a rigorous environmental assessment, initiatives that could have an impact on the environment.

The Government also administers thousands of existing laws, policies and regulations designed to achieve important national and regional economic and social objectives that may have a significant — albeit inadvertent or unanticipated — impact on the environment.

The Government of Canada will systematically review its policies, laws and regulations and propose modifications as necessary.

As the largest single "business" in Canada, the Government has important responsibilities related to the environmental impact of its own operations. Over the past two decades, the Government of Canada has become markedly more sensitive environmentally. For example, the Government has reduced energy consumption for its own activities by more than 24 per cent over the last decade.

To ensure greater accountability in decision-making and a more consistent commitment to environmental protection, the Government is proposing to adopt a code of environmental stewardship that will set specific goals and establish operating procedures.

It is clear that businesses will also be expected to operate according to demanding environmental standards. In addition to regulatory requirements, private sector behaviour will be subject to greater scrutiny by environmentally aware consumers and the general public. This will pose challenges for business. It will also create new opportunities. Good environmental management will increasingly make good business sense.

As a result, environmental considerations will have to become an integral part of overall business strategy. For many firms, it means that corporate decision-making practices will have to be changed and improved. A number of industries have already recognized this need and have begun to develop codes of environmental practice and environmental audit procedures. These are examples of the kinds of tangible measures that businesses can adopt to promote sustainable development in Canada.

Should environmental audits for industry and the Government be made compulsory and should the results be made available to the public?

Strengthening Partnerships

Better environmental decision-making will require co-operative efforts at all levels.

At the international level, global problems require global solutions. They will be effective only if they are built on international partnerships, both bilateral and multilateral.

Strong international institutions and laws are essential. Organizations such as the United Nations Environment Programme, the World Meteorological Organization and the World Health Organization will be effective instruments of change only if they are supported by all countries. International conventions and protocols, such as the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer, can ensure a common commitment to action. Traditional ideas of national sovereignty must be adjusted to reflect the need for international solidarity to achieve environmental security.

One of the greatest challenges to achieving sustainable development on a global scale will be to reconcile the legitimate economic demands of developing countries with the need to protect our global environmental resources. Canada believes that developed countries must accept their responsibility to work with developing nations in their search for environmentally sustainable development options.

The Government proposes to strengthen its support of international efforts to address environmental problems. Possibilities include greater funding to support the activities of international environmental institutions, and funding and technology transfer to help developing countries overcome environmental problems.

Canada has long common land or water boundaries with many nations, including the Soviet Union, Denmark and the United States. The protection of these shared environmental resources must be built on co-operative bilateral efforts. Otherwise, efforts to protect and improve our respective portions of the environment may be at cross-purposes.

Among those countries with which Canada shares environmental resources, none is more important than the United States. We have many common resources, such as the Great Lakes water basin and large coastal areas. The way each of us uses these resources has an impact on the other.

Within Canada, the Government's partnership with the provinces is of special significance. Co-ordinated federal/provincial action is absolutely essential if we are to address Canadian environmental problems. Both levels of government have long recognized this shared responsibility. Provincial governments have important constitutional responsibilities and powers that can be used to manage the environment. Ownership of natural resources — lands, minerals, trees — and exclusive jurisdiction over property and civil rights provide the provinces with the authority to regulate much business and industry activity.

There are, however, limitations on what the provinces can be asked to do. For example, they cannot control activities outside their own borders. They cannot regulate pollution carried by wind and water from other provinces or countries.

The Government of Canada recognizes that the provinces have an essential role in protecting the environment and will continue to respect provincial jurisdiction on environmental matters. The Government will not shirk its leadership responsibility to define policy on national environmental issues.

It is *federal/provincial co-operation* — as well as co-operation with the private sector— that has been the basis of environmental actions to date.

The Government is committed to continuing and strengthening federal/provincial and territorial co-operation to reduce uncertainty, avoid duplication and increase the effectiveness of its environmental efforts.

To that end, the federal government will propose administrative agreements with the individual provinces and territories, incorporating nationally applied standards, to address environmental issues of mutual concern.

There are many other important partnerships that need to be fostered. *Business* is an essential partner in the search for, and implementation of, effective solutions to environmental problems. *Labour* has an important role in changing the way decisions are made and in working with governments and the business community to achieve environmental objectives. *Women*, individually and through the many organizations of which they are a part, are also key to changed decision-making.

These partnerships will be essential to the long-term goal of achieving sustainable development. How can more effective partnerships be forged?

Canada's *environmental non-governmental organizations* (ENGOs) are playing a central role in educating people about environmental issues and environmental activity. They are essential to an active and balanced discussion of environmental issues.

The Government of Canada is examining ways of increasing the effectiveness of Canada's ENGO community. What can governments and ENGOs do to ensure an effective role for such organizations?

Individuals and communities have the most important role to play in bringing about changes in decision-making. The success of community Blue Box programs is testimony to the willingness of Canadians to make changes. Governments play an important role in encouraging individual and community actions. The Government's new Environmental Partners Fund, for example, provides a springboard for co-operative community efforts to protect and preserve the environment. The Environmental Choice Program will help consumers make environmentally informed purchasing decisions.

Further actions will be needed to encourage individuals and communities to act. For example, a national program similar to PARTICIPaction and other health promotion programs could be considered to encourage environmentally sound decision-making.

Today's youth are tomorrow's decision-makers. If they are to play a meaningful role in environmental decision-making and diplomacy, they must develop environmental literacy as well as leadership skills. The Government proposes to take measures to ensure that Canada's youth will have the opportunity to channel their energy and talents toward achieving environmental objectives.

The Government plans to support summer employment, training and career development in environmental conservation and protection, and to support international youth exchanges and conferences. Options include a federal government summer employment program; a private sector co-op program; and a youth conference in preparation for the 1992 U.N. Conference on Environment and Development in Brazil.

Canada's *aboriginal peoples* are often the first to experience changes made to the natural environment by human activities. Those changes have sometimes threatened their traditional and close relationship to the land.

The Government is committed to co-operative efforts with Canada's aboriginal peoples to address environmental issues of concern to them. For example, the Government is considering the establishment of an environmental advisory committee composed of representatives of First Nations to ensure that federal initiatives are sensitive to the concerns of native peoples and supportive of their efforts to manage their own affairs.

The Government will also consult with aboriginal peoples about other possible initiatives, including measures to support activities of natives that enhance or protect the environment and a special native component of the Government's youth employment initiatives.

New partnerships are needed to respond to the complex array of environmental issues. The various national, provincial and community Round Tables are good examples of an innovative approach to partnerships: they bring together representatives of all major sectors in Canada to share information and ideas.

Improved decision-making, which takes full account of environmental considerations, demands that all these partnerships be strengthened and expanded.

Action on Environmental Issues

The Government of Canada believes that action on environmental problems should be targeted at five broad areas.

A. Responding to key stresses on the environment and human health:

- the more subtle but pervasive stresses: **Toxic Substances and Waste;**
- the very visible and unpredictable stresses caused by human activity, including chemical and oil spills, as well as by natural hazards: **Environmental Emergencies.**

B. Addressing issues associated with our use of the global commons, those environmental resources — air and water — that we share and for which we are responsible collectively: problems associated with **Atmospheric Change** (global warming, ozone depletion, acid rain, toxic air pollutants and local air quality), and the misuse and degradation of **Water** resources.

C. Managing our renewable soil, forest and fishery resources on a sustainable basis: **Agriculture, Forests** and **Fisheries.**

D. Preserving and protecting Canada's unique ecological and heritage resources: **Parks and Heritage Resources,** and **Wildlife.**

E. Protecting Canada's fragile **Arctic.**

A. ENVIRONMENTAL STRESSES

Toxic Substances

There are more than 100,000 commercial chemical substances in the world marketplace today and more than 30,000 are in use in Canada. Between 100 and 200 new chemicals are introduced into this country each year. It is clear that the use of chemicals provides substantial benefits. They are important tools in maintaining the standard of living Canadians enjoy. At the same time, we are becoming increasingly aware that the use and abuse of chemicals pose major risks. The improper management of toxic substances threatens human health, degrades the natural environment and threatens the health of wildlife. While all sectors of Canadian society are now aware of the threat, and some progress has been made, the problem continues to grow.

Real success in protecting the environment and human health from the dangers of toxic substances will depend on new tools that can be used in partnership with all sectors. In 1988, the Government of Canada passed sweeping legislation — the Canadian Environmental Protection Act — designed to deal with the threat of toxic substances. As part of CEPA, a priority list of 44 substances has been identified for assessment within the next four years.

CEPA also complements the environmental protection provisions of several other pieces of legislation, including the Fisheries Act, the Pest Control Products Act and the Transportation of Dangerous Goods Act, and is the basis for federal/provincial co-operation in environmental protection.

Notwithstanding these measures, more needs to be done on toxic substances. Areas to be addressed include:

- *more rapid assessment of priority substances;*

- *more comprehensive monitoring of toxic substances, and*
- *increased research.*

Governments, industry and universities also need to co-ordinate scientific efforts to assess toxic substances; one option is to develop a national toxicology network.

Consultations are now under way regarding national standards for effluents and toxic wastes from pulp and paper mills; they will be put in place later this year.

Based on the assessments of substances on the priority substances list, the Government will move towards national standards under CEPA for other major industries such as metal mines and mills, smelters, power generation plants, hazardous waste facilities, textile factories, petroleum refineries, chemical production plants and steel plants. Each regulatory initiative will be accompanied by appropriate consultations with the public and industry.

Meeting environmental standards may affect some firms in some regions more than others. What options are available in cases of hardship?

In addition to problems of toxic chemicals, there is some concern about the sound management and control of the products of the biotechnology industry. Although many products of biotechnology are safer than, and will replace, older toxic chemicals, it is critical that mistakes made with chemicals not be repeated.

The Government is now considering, as a priority, a preventive framework for regulating the biotechnology industry, including, within five years, national regulations on products and byproducts.

Waste Management

On a per capita basis, Canadians produce more waste than citizens of any other country in the world and have a poor recycling record. Results include landfills stretched to capacity, problems with storage of hazardous waste, and degradation of the natural environment.

Canada's environment ministers have agreed to set a national goal of reducing waste generation by 50 per cent by the year 2000. Notwithstanding any future Canadian success in reducing, reusing or recycling waste products, the reality is that a substantial amount of waste, both hazardous and non-hazardous, will continue to be generated. It will have to be managed. New waste disposal sites will have to be found and facilities for disposing of hazardous waste will have to be built. Public concern about siting of facilities is an increasingly formidable challenge to the economic management of waste.

Recognizing that local and provincial governments have a major role in waste management, the Government is interested in finding new ways to facilitate co-operative action and to encourage waste reduction and recycling.

Canadians need to explore the ways governments, industry and individuals can best contribute to a 50-per-cent reduction in waste. One mechanism is

an Office of Waste Management to expand the national waste exchange program and to promote waste reduction and recycling.

National regulations to control packaging and to require recycling are an option for addressing the waste issue. Alternatively, emphasis could be placed on educational measures, voluntary action, and pricing to reduce waste.

The federal government has defined four essential requirements in locating hazardous waste treatment facilities:

- provision of scientifically based information;
- community self-selection for facilities;
- community veto of particular sites, and
- respect of requirements under the Environmental Assessment and Review Process.

Are there additional steps governments can take to address the legitimate concerns of Canadians with respect to locating waste management facilities, while meeting the growing need for such facilities?

Environmental Emergencies

We are often shocked into an awareness of the powerful, unpredictable and life-threatening stresses that we impose on the environment — spills of oil and other hazardous substances — and that the environment imposes on us — earthquakes, tornadoes and other extreme weather conditions. Sometimes man and nature combine with devastating effects.

The risk of environmental emergencies, whether naturally occurring or as the result of human activity, can never be eliminated. Pollution accidents are inevitable in a world dependent on substances such as oil and chemicals. While we can mitigate the impact of natural hazards, we cannot prevent them from occurring.

The first response to man-made catastrophe must be *prevention* and *preparedness*.

Preventive action must be taken to minimize the risk of pollution accidents and to prevent deliberate discharges of oil and other hazardous products directly into the environment. But, equally important, we must be prepared to respond to emergencies quickly — those we cause and those that occur naturally. Both demand quick and co-ordinated action that will minimize the threat to life and the possible environmental and economic damage.

The Government of Canada has an important role in dealing with environmental emergencies, but, in most cases, carries out this role in conjunction with other jurisdictions and interested parties.

The Government has taken a number of steps to reduce the risks associated with natural hazards in Canada, including extreme-weather warning services and relief measures.

The Government of Canada plans to upgrade its ability to provide more timely and effective warnings of natural hazards such as blizzards, tornadoes and marine storms — hazards

that are themselves often linked to pollution emergencies. Options include:

- ***improved techniques for understanding and detecting natural hazards;***
- ***better communications, and***
- ***enhanced public education about the impacts of severe weather.***

Several federal acts, including the Canadian Environmental Protection Act and the Canada Shipping Act, provide for measures to reduce the risk of pollution emergencies and to ensure effective responses. The Government also advises on such matters as environmental impact, containment procedures, clean-up technology and remedial action. Federal response is co-ordinated by different agencies, depending on the type and location of the emergency. For example, the Canadian Coast Guard co-ordinates response to ocean spills.

In March 1989, the Government ordered a comprehensive review of Canada's capability to deal with marine spills. A review panel — the Public Review Panel on Tanker Safety and Marine Spills Response Capability — was appointed to conduct public hearings and to make recommendations to the Government of Canada. The panel's final report is expected later this spring.

The Government of Canada plans to introduce a comprehensive environmental emergency program to cover the production, transportation and disposal of oil, chemicals and other potentially hazardous substances. *As a priority, it will address recommendations of the Public Review Panel on Tanker Safety and Marine Spills Response Capability.*

What role could Canada's military play in this regard?

How can the participation of volunteers be enhanced?

The Health Dimension

In recent years, people have begun to realize that health is not only an individual responsibility, but also involves interactions among individuals and communities and between them and the environment. Pollution, whether it is long-term or arises from environmental emergencies, affects human health. Therefore, maintaining and improving health is not simply a function of the health care system, or of individual behaviour, but is affected by environmental and economic decision-making.

That means protecting health by paying closer attention to the environment, whether it be through more stringent environmental regulations or by taking other steps to encourage individuals and communities to incorporate environmental considerations into decision-making. A more benign approach to the environment will pay dividends in the form of improved human health.

The Government of Canada recognizes the links that exist among environment, economy and health. In addressing environmental problems, therefore, it intends to take effective measures that respond to health concerns. Specific initiatives to address the links between environment and health are under development and will be discussed in the course of consultations.

B. THE GLOBAL COMMONS

Atmospheric Change

The potential for climatic disruption on a global scale, the thinning ozone layer, ongoing damage from acid rain and the emerging problem of toxic air pollutants all have economic implications, and pose threats to human health and the health of the environment.

Global Warming

For more than a decade, there have been warnings that we are polluting the atmosphere at a rate that threatens to alter dramatically the world's climate. Research suggests that the temperature of the earth could rise by as much as 3.5°C over the next century. Such a rapid change would be unprecedented in human history; it would likely result in major shifts in weather patterns and would cause more frequent severe weather conditions.

Responding to the problem of global warming will be a formidable challenge. Effective action must be based on sound information and on an accurate diagnosis of the problem, but serious gaps remain in our scientific knowledge. At the same time, if we wait for all the answers, we will no doubt be too late.

Canada is taking part in international scientific efforts looking into climate change, but the scope and nature of Canada's participation needs to be considered. Options include establishing a centre for climate change research, to enhance Canadian understanding and detection of climate change and its impact on Canada. Such a facility could be established as a government institution, or as a co-operative venture between government, the private sector and the academic community.

Global warming is an international problem. While efforts by individual countries are needed, co-operative and co-ordinated international action is required for a lasting solution. Canada is pressing for a global convention on climate change, to be implemented as soon as possible. There have been many calls for countries to commit themselves to setting quantitative targets and schedules that will control global emissions of carbon dioxide and other greenhouse gases. Canada insists on a worldwide investigation into the feasibility of such targets.

On a national basis, the Government is committed to a comprehensive approach to greenhouse gases.

Should Canada commit itself to greenhouse gas emission targets? If so, on what basis should the targets be determined? Should targets include an allowance for Canada's forests as carbon sinks? Should Canada commit itself unilaterally or only as part of concerted international action?

What mechanisms should be used to achieve the appropriate reductions? Options include regulation, economic instruments (e.g., environmental taxes, tradeable emissions permits, etc.) and support for new environmental technologies.

A task force under the aegis of federal and provincial ministers of energy is examining the options for and the likely effects of a commitment to reduce carbon dioxide emissions. However, there will be a price to pay for reducing greenhouse gas emissions.

Controlling sources of greenhouse gases will impose economic costs and ultimately may require dramatic lifestyle changes, particularly for any nation that takes action unilaterally. How far should we go? What is the best way to ensure that Canadians are in a position to make informed choices?

Energy ministers have already indicated that significant reductions in carbon dioxide emissions can be achieved only through major shifts in the ways we produce and consume energy in Canada — key elements of the economic structure of this country. Virtually all sources of energy carry their own environmental risks.

What role, therefore, should nuclear energy and hydro-electric power play in reducing greenhouse gas emissions? What role can and should energy efficiency and alternative energy play?

Are energy megaprojects consistent with a commitment to greenhouse gas reductions?

Transportation is a major source of carbon dioxide. The Royal Commission on National Passenger Transportation will be examining environmental issues as part of its own work on the future of transportation in Canada. Building on that work and in consultation with the provinces, the Government will develop a long-term strategy for transportation in this country, taking into account the important role that the sector can play in responding to environmental needs.

The world's forests are an important sink for carbon, thereby helping to limit the build-up of carbon dioxide in the atmosphere. However, many of those forests are being threatened as land is cleared for agriculture and settlement in developing countries. In the process, tonnes of carbon dioxide are released into the atmosphere.

Canada assists developing countries to adopt sustainable forestry practices, using measures such as the Tropical Forestry Action Plan. The Government is considering additional measures.

As the steward of nearly one-tenth of the world's forests, Canada has a responsibility to manage its own forests on a sustainable basis. Some Canadians have proposed that governments and industry review logging and cutting practices and commit themselves to a program of forest replacement.

Ozone Depletion

In many ways, Canada's efforts in combatting ozone depletion could serve as a model for approaching a variety of environmental issues. Our approach combines effective science, international co-operation and domestic measures to implement agreed-on programs.

Despite its success, the Government of Canada believes that further action is needed to limit ozone depletion. Gaps remain in our understanding of the ozone problem and in the range of technological alternatives to chlorofluorocarbons (CFCs). Evidence indicates that the problem is continuing to worsen.

The Government of Canada proposes to eliminate Canadian production and importation of CFCs and halons and is considering eliminating other ozone-depleting substances by 1999.

As part of its overall science program, the Government is considering a significant increase in its financial support for ozone research. One option is to establish a permanent Arctic ozone observatory.

Ozone depletion is a global problem and will require the co-operative efforts of all nations, including developing countries. Canada is prepared to contribute to that effort. It needs to consider how to help developing countries protect the ozone layer, while they meet their aspirations for economic development. Possibilities include technology transfer and dedicated funding to assist compliance with efforts to combat ozone depletion.

Acid Rain

In 1985, Canada launched a major Acid Rain Control Program to reduce acid rain-causing emissions. Under co-operative agreements with the seven easternmost provinces, measures have been implemented to reduce sulphur dioxide emissions by 50 per cent by 1994.

The effective control of acid rain, however, depends on action in both Canada and the United States: more than half the acid deposition in eastern Canada originates from U.S. emissions. Canadian emissions contribute between ten and 25 per cent of depositions in the northeastern U.S.

For this reason, the Government of Canada has been pressing the U.S. government to pass acid rain legislation that will meet Canadian needs. The Government will negotiate with the United States a Transboundary Air Quality Accord in an effort to codify commitments to deal with the acid rain problem. The Government is also participating actively in negotiations under the Economic Commission for Europe to develop international agreements for controlling the transboundary flow of sulphur dioxide.

Canada's acid rain control program has been a good example of the success of joint federal/provincial action to control an environmental problem. The first phase of the program will be completed in 1994.

What additional control measures should be taken to reduce acid rain for the period beyond 1994, and, if there are any, how should they be implemented? For example, should the federal government and the seven

easternmost provinces work to cap sulphur dioxide emissions at their 1994 levels? Should the Government of Canada seek to establish similar agreements with the three westernmost provinces, with emissions capped at an appropriate level?

The Government plans to continue, in co-operation with the provinces, the research program on Long-Range Transport of Airborne Pollutants (LRTAP). What additional work is required to verify the effectiveness of the current acid rain program and to determine the need for future measures?

Air Quality and Toxic Air Pollutants

Significant reductions in concentrations of many air pollutants, such as lead and particulates, have been achieved. Nonetheless, there are still serious problems with local air quality from ground-level ozone, or smog. Each summer, about half the Canadian population is routinely exposed to ozone in excess of maximum acceptable levels.

While attention has focused on acid rain, the airborne transport of other toxic substances is also emerging as a major concern. The Government of Canada and the provinces, through the Canadian Council of Ministers of the Environment, are now engaged in public consultations on a comprehensive ten-year plan to manage emissions of nitrogen oxides (NOx) and volatile organic compounds (VOCs) — pollutants that are central to the chemical reactions that produce smog. A number of actions and initiatives are under consideration to reduce emissions. For example, federal and provincial environment ministers announced last October that they intend to reduce emissions resulting from the use of transportation fuels.

The Government of Canada has proposed to establish California emission standards for 1994 model-year cars.

The Government is interested in the views of Canadians on methods of achieving our environmental goals with respect to NOx and VOCs. In particular, it would like to explore the possible use of economic instruments to complement regulatory controls in reducing emissions. Perhaps the principal advantage of such economic instruments as tradeable permits systems and emission charges is their potential for realizing environmental goals in the most cost-efficient manner.

As is the case with acid rain, and in spite of the sometimes localized nature of the problem, Canadian actions alone will not be sufficient to reduce air pollutants. Ozone and other toxic air pollutants in Canadian cities and regions originate both from inside Canada and from the U.S. The Government will pursue negotiations with the United States under the Transboundary Air Quality Accord to incorporate both countries' commitments to controlling the transboundary flow of toxic air pollutants. Further, the Government will participate in negotiations under the auspices of the Economic Commission for Europe to produce international agreements on control of the transboundary movement of airborne toxic pollutants and volatile organic compounds.

Water

Canadians are concerned about the quality of the water they drink and about the link between the degradation of water resources and their health. They are also concerned about the health and productivity of major freshwater systems such as the Great Lakes, the St. Lawrence and the Fraser, and our coastal waters. They worry about the continued ability of our water resources to support domestic consumption; accommodate existing and emerging economic activity, and provide recreation. They are also concerned about the health of fish and their habitat.

Progress has been made through the adoption, in 1987, of a Federal Water Policy and an Oceans Strategy. Important legislative instruments such as the Canadian Environmental Protection Act and the Fisheries Act have been used to develop regulations aimed at controlling water pollution. In addition, federal/provincial agreements have been reached to clean up nationally important bodies of water such as the Great Lakes and the St. Lawrence River. The St. Lawrence Centre is the most recent result of these agreements.

Despite these efforts, much remains to be done.

Some options include:

- *increased efforts in water-related research with a particular emphasis on toxics, including the effect of airborne pollutants, and on climate change;*
- *increased monitoring programs, enhanced ability to forecast trends in water quality and availability, and the preparation of a National Water Atlas;*
- *promoting the development and demonstration of water-saving and non-polluting technologies, and*
- *undertaking educational and awareness initiatives to encourage water conservation, modelled on the PARTICIPaction program.*

While the key to successful water quality management is prevention of pollution before it occurs, clean-up efforts such as those under way in the Great Lakes and St. Lawrence must continue.

The Government has identified the Fraser River as a priority for clean-up action and will consult with the province, industry and communities along the river to determine the best approach.

The Government has also concluded that there are important legislative gaps that need to be remedied.

Legislative measures include:

- *a Drinking Water Safety Act that will provide the authority for establishing, inter alia, standards for drinking water (procedures for their application by provincial governments will need to be developed in consultation with the provinces), and*

- ***a Canada Oceans Act to provide for the protection and preservation of the marine environment.***

The Government recognizes the responsibility of provincial and municipal governments to provide secure and self-sustaining water and wastewater treatment systems. There is considerable scope for encouraging more efficient water use in Canada through economic instruments. In particular, realistic water pricing is a necessary element of any solution to the problems of municipal water treatment and supply infrastructure. The Government also remains committed to the "polluter pays" principle.

The Government wishes to encourage environmentally sound water management through the use of economic instruments, including water pricing, and is considering sponsoring a national conference with the provinces and other interested parties.

C. SUSTAINING OUR RENEWABLE RESOURCES

Many of Canada's most important economic activities rely on maintaining healthy and productive resources: land, forest, and fisheries.

Agriculture

Increasingly, farmers and governments recognize the necessity of implementing measures that take into account the impact of agriculture on the natural environment — especially soil, water resources and wildlife — and of addressing environmental problems of special concern to agriculture, such as acid and toxic rain.

Nevertheless, the development of economically and environmentally sustainable agriculture poses difficult issues for all participants in the agri-food industry, from the farmer to the consumer.

Consultations are under way to develop a comprehensive framework for a wide range of economic, environmental and health issues of concern to the agricultural sector.

The Government is seeking views on its paper, *Growing Together — A Vision for Canada's Agri-Food Industry,* released in November 1989. The document provides a policy framework based on four principles o reform: more market responsiveness, greater self-reliance, recognition of regional diversi and increased environmental sustainability.

Recognizing the important contribution that the agricultural sector can make to enhancing environmental quality, the Government wants to ensure that all Canadians have an opportunity to express their views on the priority of sustainable agriculture in *The Green Plan.* This will assist the federal government, through the Department of Agriculture, in considering a program to promote sustainable agriculture in Canada.

In what ways can farm producers be encouraged to adopt practices that promote soil conservation and regeneration?

What agricultural and waste management practices should be put in place to ensure that resources used by others e.g., surface water and groundwater, are not unduly degraded?

Given that consumers are the ultimate arbiters of food quality and standards, what role can they play in supporting environmentally sound agriculture?

Forests

Forestry is amongst Canada's largest industries. Properly managed, forests contribute to a variety of environmental and economic objectives: soil stability, water supply, biological diversity and wildlife habitat; they are a sink for carbon dioxide emissions, and provide a basic resource for Canada's largest export activity. Improperly managed, forests create a host of environmental problems: soil erosion, polluted water, and loss of wildlife.

The evidence suggests that Canada's forest resources are not yet being managed and protected in a fully sustainable manner. The preservation of old-growth forest is of special concern. Improved management, however, often raises difficult short-term trade-offs between economic growth and job creation and long-term environmental and economic benefits.

The federal and provincial governments, through the Canadian Council of Forest Ministers, have endorsed both a National Forest Sector Strategy for Canada and, more recently, the concept of sustainable development in the forest sector. For its part, the Government has created a new Department of Forestry that includes the concept of sustainable development in its enabling legislation.

In what ways can Canada move toward better protection, better use, effective restoration and improved understanding of its forest resources in the context of sustainable development?

In what ways can the federal government best contribute while respecting the jurisdictional prerogatives of the provinces? For example, should it place an emphasis on the scientific aspects of sustainable forest practices?

Fisheries

Canada's marine and freshwater fisheries support a substantial harvesting and processing industry — the economic backbone of some coastal regions — and provide an important source of recreation for almost six million Canadians. The fishery is both a source of food for, and an important element of the culture of, many of Canada's aboriginal peoples.

Fish stocks are now threatened by excessive harvesting in marine fisheries both inside and outside Canada's exclusive fishing zone. In the freshwater fisheries, the major problem is the destruction or pollution of the habitat on which the stocks depend.

Outside the 322-km fishing zone, overfishing of Atlantic groundfish by European Community and other fleets has seriously damaged straddling stocks. Within the Canadian zone, the low level of penalties under the Fisheries Act means that the fines for illegal fishing are little more than a cost of doing business. In the Pacific Ocean, foreign driftnet fleets operating 1,000 km beyond the Canadian fishing zone indiscriminately trap and kill thousands of fish, seabirds and marine mammals.

Managing these threats to sustainable development of the resource will require a variety of responses: regulatory and enforcement action;

international diplomacy; a greater science effort; innovations in fisheries management, and development of environmentally sustainable economic opportunities.

The Government will bring forward amendments to the Fisheries Act this year to increase substantially the penalties for illegal domestic fishing and for destroying fish habitat.

What further legislative and regulatory measures are required to ensure that the fishery resource within the Canadian zone is conserved and protected? How can enforcement be strengthened and compliance with the law be improved?

How can the federal government best ensure that fish habitat is protected, particularly in those regions where provincial authorities administer the freshwater fishery?

What are the priority areas for further improving the Government's fisheries and ocean sciences capacity?

Internationally, Canada has been pressing European countries to abide by the management rules set out by the Northwest Atlantic Fisheries Organization. Canada co-sponsored the recent U.N. resolution calling for an immediate ban on South Pacific driftnet fishing and a possible moratorium on all high-seas driftnetting by 1992.

What further international action is needed to deal with the pressing problems of foreign overfishing and driftnetting?

D. PRESERVING ECOLOGICAL AND HERITAGE RESOURCES

National Parks and Historic Sites

Protection of heritage areas provides a tangible and enduring demonstration of Canada's commitment to the environment. The Canadian Parks Service is active in every province and both territories, managing 34 national parks and park reserves, one national marine park and 112 national historic sites. Our parks and historic sites are seen as models of environmental quality and are an important legacy for future generations. By protecting natural ecosystems and wildlife habitat, the parks are also important reservoirs of natural species and gene pools.

The long-term goal of the Government is to represent each of Canada's natural regions and major historic themes in the systems of national parks, national marine parks and national historic sites. Accomplishing this goal will not be easy, and major gaps exist. For example, only 21 of the 39 terrestrial regions are currently represented. Land use and jurisdictional conflicts will have to be resolved, and the concerns of local residents addressed, before further expansion can take place. In some instances, native land claims are an important factor.

There are many pressures on national parks and historic sites, particularly in a time of budget constraint. Ecological integrity must be assured. Cultural resources require careful management. Facilities should be well maintained and services should reflect changing visitor needs.

The Government proposes to establish at least five new parks by 1995, and will continue planning to meet its commitment to complete the national parks system by the year 2000; to establish three new marine parks by 1995, and to commemorate seven key historic themes by 1995.

Given budget constraints and the high cost of upkeep, what should be the priority for maintaining levels of service to the public in new and existing parks? For protecting natural and cultural resources?

Are there additional priorities? For example, would an expansion of existing park interpretation programs be an effective means of promoting environmental awareness?

Are there innovative ways of financing new and existing parks?

Wildlife

Wildlife is integral to the Canadian heritage and is an essential element in ensuring the continued productivity and diversity of ecosystems.

Many northern economies are based on wildlife. It is an indicator of environmental health and acts as an early warning signal on the effects of human activity on the environment. However, habitat loss and destruction, overuse and poaching, and toxic contamination are posing severe threats to many wildlife species. Currently, at least 180 wild animal and plant species are on the brink of extinction in Canada.

Addressing these threats will be a challenge. Preserving wildlife will require a better understanding of the ecological links between humans, their activities and the environment. New programs will impose costs, and priorities will have to be established, but the Government is committed to maintaining and enhancing wildlife populations for the benefit of all. In particular, Canadians must ensure that the subsistence of our native populations is secured.

In order to achieve these goals, the Government is considering implementing a program to protect wildlife populations and their habitat.

Wildlife research and monitoring should be strengthened. Where should the Government concentrate its efforts and how should the efforts of governments, industry and universities be co-ordinated? For example, should networks of co-operative research centres be established? A network of wildlife laboratories at Canadian veterinary colleges?

The Government is considering a Wild Animal and Plant Protection Act to control international traffic in endangered wildlife. Should the Government consider further legislative initiatives such as an Endangered Species Act to protect endangered species in Canada?

The Government is actively participating in negotiations leading to a global convention on biodiversity.

E. PROTECTING THE ARCTIC ENVIRONMENT

The fragile Arctic ecosystem is under stress from a wide range of human activities. There is increasing pressure from resource activities such as mineral and petroleum development. Toxic pollutants are accumulating in the food chain. As in other parts of the country, rising resource-use conflicts and increasing environmental degradation are raising difficult questions: how do we reconcile economic aspirations with the protection of the environment?

Protecting the Arctic environment presents challenges that differ from those in more temperate parts of the country.

The Canadian Arctic is an integral part of the circumpolar region; the United States, the Soviet Union, Finland, Denmark, Iceland, Norway and Sweden are our neighbours in the Arctic. Wildlife migratory patterns often cross international boundaries; marine mammals, caribou, and many birds spend important parts of their life in other countries. The region is affected by pollution problems that originate in distant parts of the world. Some persistent chemical waste has shown up in the food staples of Canada's aboriginal peoples who make the Arctic their home.

There are significant gaps in our understanding of Arctic ecosystems and the impact of human activities. The harsh environment and remoteness also make scientific research more difficult and more costly than comparable activities in southern Canada.

Native peoples have a special relationship to the land. Despite the many changes that have occurred in the last century, the harvest of the land remains a source of subsistence and income for northern communities, and continues to provide social, nutritional and cultural benefits. The Government is working with native organizations, through the land claims process and by co-operative management agreements, to give aboriginal peoples greater responsibility for managing the northern environment.

To meet the growing challenges of protecting the environmental integrity of our Arctic regions and to foster a new co-operative ethic the Government of Canada will be bringing forward a Federal Arctic Environmental Strategy. The strategy will focus on four broad areas (economic development, resource management, pollution and protected regions) and will include specific actions.

The Federal Arctic Environmental Strategy will be founded on long-term partnerships involving governments, non-governmental organizations and the public.

The Government proposes to place more emphasis on the sustainable development of renewable northern resources.

The Government intends to pursue a strategy and research program to:

1. *identify and deal with pollution sources and their effect on the Arctic environment and northern people;*

2. *monitor Arctic ecosystems, and*

3. *develop a systematic approach to defining protected areas.*

In particular, recent events in provinces bordering the north have emphasized the urgent need to protect northern freshwater resources. This requires the completion of transboundary water management agreements and the substantial enhancement of existing water quality monitoring programs.

Hazardous and solid wastes have been abandoned at a number of locations throughout the Arctic. This situation is unacceptable and the Government is determined to launch a full-scale clean-up operation.

Consultations on the Federal Arctic Environmental Strategy will proceed in conjunction with consultations on the Government's *Green Plan.*

Postscript

The Government of Canada believes that sustainable development offers the promise of a lasting solution to environmental problems. To bring about sustainable development, Canadians and their governments must proceed together to develop an action plan that removes obstacles to better decision-making. This plan must address immediate environmental problems and related health concerns of Canadians, and provide a long-term strategy to deal with environmental issues as they arise and evolve over time. In both cases, action should focus on three closely related considerations:

- improved decision-making, including better science, environmental information, education, regulation and the use of economic incentives;
- reformed decision-making processes and institutions, and
- new and stronger partnerships.

Achieving sustainable development will not be easy. It will require changes in our attitudes and behaviour towards the environment. Indeed, environmental considerations will have to become a forethought, not an afterthought, in the decision-making process.

This *Framework for Discussion on the Environment* outlines the Government's broad approach to environmental problems and suggests specific issues that need to be addressed as it develops its *Green Plan.*

Sustainable development is not, however, an issue for, or a responsibility of, the federal government alone. It demands a commitment on the part of all Canadians acting individually and collectively. Canadians may wish to go beyond commenting on specific questions raised in the *Framework* to deal with broad and fundamental questions. Among them:

- ***Are the priorities that emerge — better decision-making, partnerships — the most useful ones?***
- ***Given the reality of budget constraints, how can we achieve our environmental objectives?***

The views of Canadians on these and other issues raised in this paper will help transform the Government's *Framework for Discussion on the Environment* into *The Green Plan: A National Challenge.*

Notes

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PROCTER & GAMBLE INC.

Post Office Box 355, Station "A", Toronto, Ontario, Canada M5W 1C5 Telephone (416) 730-4711 Fax (416) 7

April 23, 1990

Mr. Reginald Whynott
Chairman
Hamilton-Wentworth
25 Main Street West -- 4th floor
Hamilton, Ontario
L8P 1H1

Dear Mr. Whynott:

On behalf of Procter & Gamble Inc., I'd like to express our thanks for the opportunity to discuss the issues surrounding paper diapers at the meeting of the Chairman's Advisory Committee on Environmental Issues. We appreciate the Committee's interest.

Procter & Gamble would be pleased to share with the Committee information concerning other waste management issues that may be of particular interest. If we can provide any background or research that might be helpful in your endeavours, I hope you will feel free to call on us.

Again, thank you for your interest. We look forward to working together with Hamilton-Wentworth to develop viable solutions to environmental concerns.

Sincerely,

J d'Eon

Jacqui d'Eon
Manager
Consumer and Educational Services

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DISPOSABLE DIAPERS: AN HISTORICAL PERSPECTIVE

One of the most significant achievements in baby care came in the early 1960s with the introduction of disposable diapers. Revolutionizing parent convenience and baby comfort, disposable diapers evolved and improved over the next two decades. And as they did, they grew in popularity throughout Canada.

By the early 1980s, disposable diapers had become the overwhelming choice of parents, hospitals and health care professionals. Not only are they the most convenient way to diaper babies, they have major health care advantages. Relative to cloth diapers, disposable diapers provide superior dryness and help prevent serious diaper rash.

Now over 90 percent of Canadian parents are using disposable diapers for their infants at least some of the time. And over 80 percent of Canadian hospitals use them because of the skin care benefits and cost-effectiveness.

But these days, responsible parents have more on their minds than simply convenience and economy. They are also concerned about our environment and the impact their choices have on such important issues as solid waste. They want to do everything they can to make a difference. As a company committed to meeting consumer needs, Procter & Gamble is developing technology and products to answer this new demand.

As part of this new consciousness, disposable diapers are being scrutinized for their impact on our environment.

As the makers of Pampers and Luvs, two of the leading disposable diaper brands on the market today, Procter & Gamble recognizes the importance of this growing concern. We're committed to minimizing the impact of our products, packaging and their manufacture on the environment. Part of that commitment is to provide factual information so that consumers, legislators and other interested parties may make informed judgments.

If you would like additional information about any of these topics or other Procter & Gamble environmental initiatives, please contact Jacqui d'Eon, Manager, Consumer and Educational Services, Procter & Gamble Inc., P.O. Box 355, Station A, Toronto, Ontario M5W 1C5. Tel: (416) 730-4652.

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DIAPER ISSUES

SOLID WASTE

- What is Solid Waste?

SOLID WASTE POLICY OVERVIEW

- General Policy

DISPOSABLE DIAPER INITIATIVES

- Reduction
- Recycling
- Composting

INDUSTRIAL SOLID WASTE REDUCTION AT P&G'S BELLEVILLE, ONTARIO PLANT

BIODEGRADABILITY

- What is Biodegradability?
- Landfills
- Biodegradability and Disposable Diapers
- Biodegradable Plastics
- Procter & Gamble's Perspective on Biodegradable Plastics

INFANT SKIN CARE BENEFITS OF DISPOSABLE DIAPERS

RELATIVE ENVIRONMENTAL IMPACT OF DIAPERING SYSTEMS

COST COMPARISON OF DIAPERING SYSTEMS

- Diaper Service
- Home Laundering

HEALTH QUESTIONS CONCERNING DIAPER DISPOSAL

PRODUCING PULP FOR PAPER DIAPERS

- What is Bleaching?
- Timber Use: Kraft versus CTMP
- Dioxin
- Dioxins in Pulp Mill Effluent

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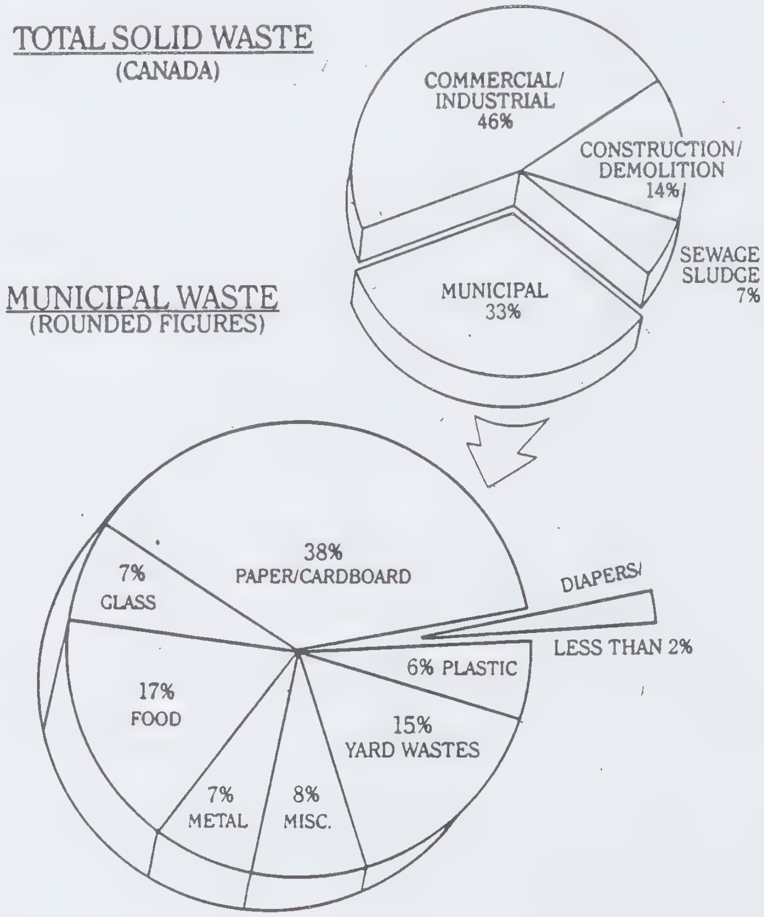
SOLID WASTE

WHAT IS SOLID WASTE?

Quite simply, total solid waste is the garbage that is disposed of by individuals, industry and businesses. Canadians dispose of about 1000 kilograms of it per year for every man, woman and child. Municipal solid waste is the portion of total solid waste that is collected by municipalities from individual households, apartments and small businesses. Municipal solid waste accounts for approximately one-third of total solid waste.



TOTAL SOLID WASTE
(CANADA)

MUNICIPAL WASTE
(ROUNDED FIGURES)

Disposable diapers constitute less than two percent of all municipal solid waste generated annually in Canada.

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SOLID WASTE POLICY OVERVIEW

GENERAL POLICY

Procter & Gamble Inc. is committed to minimizing the impact of its products and packages, and their manufacture, on the environment and on solid waste disposal. This commitment is consistent with superior satisfaction of consumer needs, and with sound business practices, local conditions and our need to use safe and economically feasible materials.

Procter & Gamble supports as reasonable, responsible and technically feasible, the general consensus developing around an integrated approach to waste management priorities, ranked as follows:

- Source reduction to reduce the amount of waste to be managed.
- Reuse, recycle and compost opportunities.
- Incineration using "state-of-the-art" technology to convert waste into energy.
- Landfill for all waste not managed by the first three options.

Procter & Gamble realizes that there is no single solution, and firmly endorses an integrated approach covering all aspects of waste management -- source reduction, reuse, recycling and composting, using waste-to-energy incineration and landfill as less-preferred options.

In Canada, 85% of the current municipal solid waste stream is disposed of in landfill, with the remainder being recycled or incinerated. We are committed to contribute meaningfully to both the short term and long term goals being developed by governments at the Federal, Provincial and Municipal levels. More specifically, we support the goal outlined by the Canadian Council of Environment Ministers: to divert 50 percent of total solid waste from landfill and incineration by the year 2000.

N.B. - A copy of Procter & Gamble's complete Solid Waste Policy is included in this information package.

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SOLID WASTE POLICY

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Procter & Gamble supports as reasonable, responsible and technically feasible, the general consensus developing around an integrated approach to waste management priorities, ranked as follows:

- **Source reduction** to reduce the amount of waste to be managed.
- **Recycle, reuse and compost** opportunities.
- **Incineration** using "state-of-the-art" technology to convert waste into energy.
- **Landfill** for all waste not managed by the first three options.

Procter & Gamble realizes that there is no single solution, and that an integrated approach covering all aspects of waste management needs to be employed. In Canada, the current municipal solid waste stream is disposed of mainly in landfill, with small percentages being incinerated or recycled. We are committed to contribute meaningfully to both the short term and long term goals being developed by governments at the Federal and Provincial levels.

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SOURCE REDUCTION

Source reduction is defined as improvements in product, package design, or manufacturing processes, that minimize the amount of solid waste generated. Priority attention will be given this option when exploring solid waste initiatives. Specifically, we will:

-- Continue to design products and packages that minimize the material which ultimately must be disposed of as solid waste. This will be achieved through the use of materials and constructions that deliver more product to the consumer with less waste to discard.

-- Design concentrated products where consistent with superior satisfaction of consumer and customer needs.

-- Minimize waste material associated with the manufacture and distribution of our products. This will include improvements to manufacturing that produce less off-quality product and less scrap product during manufacturing tests. Sound waste management practices will be an integral part of process and engineering design.

-- Use single element packaging where possible.

-- Encourage suppliers to make source reduction an integral part of their commercial relations with the Company.

-- Support and sponsor research into more effective/ efficient ways and alternative systems to reduce solid waste as a source.

RECYCLE, REUSE

Significant reductions in the volume of materials going to landfill or incineration can be accomplished through recycling. Furthermore, "environmentally compatible" use of plastic is dependent upon a strong infrastructure to facilitate collection, reclaim and end-user markets. Procter & Gamble is committed to helping build such an infrastructure in Canada. More specifically, we will:

-- Use recyclable materials wherever possible.

-- Use post-consumer recycled material at the highest possible levels consistent with available technology.

-- Code plastic bottles and packages with the Society of the Plastics Industry of Canada (SPI) code to facilitate recycling.

-- Recycle as much plant scrap as possible, consistent with economic feasibility.

-- Encourage package reuse by the consumer through product concentrate/refill types of containers, again consistent with superior satisfaction of consumer needs.

-- Support activities that encourage recycling through genuine consumer incentives, development of new technologies for both reclamation and collection, and development of new and more extensive end-user markets.

-- Support activities that facilitate set-up of a recycling infrastructure (collection - reclaim - end-user market).

INCINERATION

Procter & Gamble considers that the process of incineration to convert waste into energy, through state-of-the-art technology, is an integral part of a comprehensive and responsible solid waste management program. It is recognized, however, that incineration is a controversial means of waste management due primarily to misinformation and misperception. To specifically support incineration as an essential part of comprehensive waste management, P&G will:

-- Ensure our products and packages are compatible with safe incineration (i.e., no added heavy metals).

-- Support and contribute to public policy, education initiatives, and research, to help reduce misperceptions and to facilitate incinerator siting decisions.

-- Support legislation that responsibly regulates air emissions from incineration and safe disposal of incinerator ash.

-- Avoid use of controversial materials if alternatives exist.

LANDFILL

Procter & Gamble believes that properly designed and operated landfills will remain a necessary option in solid waste management for the foreseeable future. We do not believe that degradability, as the technology now stands, is a desirable attribute as it relates to manufactured products and packages in landfills. Specifically, we will:

- Ensure that we understand the fate of our products and packages in landfills.
- Ensure that our products and packages do not generate, mobilize, or release harmful amounts of chemicals, and that they are either inert or break down into safe end-products.
- Recognizing that volume is a critical factor for landfilling, strive to develop products/packaging that can be compacted to substantially reduced volume, again consistent with superior consumer satisfaction and sound business practices.
- Keep abreast of the latest technology in degradability to assure that we are fully informed of the advantages and/or limitations of any new developments.
- Oppose legislation that singularly focuses on degradability as an ultimate solution to either the solid waste or the litter problem.
- Support research directed to a better understanding of the behaviour and fate of landfilled wastes.

OTHER

In addition, Procter & Gamble will:

-- Institute and support ways to better inform and educate the public on the solid waste issue, and on the environmental compatibility of our products and packages, so as to foster balance and perspective.

-- Recognizing that the litter problem is a related element of the solid waste issue, encourage responsible disposal of our products and packages, and consider/support package design that will reduce the litter problem.

-- Support ocean-dumping controls to prevent pollution of the ocean and litter on the beaches.

-- Actively seek and support legislation aimed at fostering a balanced, integrated approach to solid waste management and all that it entails. We will encourage incentives for source reduction and composting, establishment of a recycling infrastructure, and responsible siting and regulation of state-of-the-art incinerators and landfills.

-- Actively oppose legislation which enacts product or packaging bans, or legislation which has no substantive impact on solid waste management. Procter & Gamble recognizes that management of the solid waste issue will require funding by various government bodies who will continue to look toward the solid waste stream for that source. We oppose taxes as a method for impacting the solid waste issue because this approach does not help to change consumer behaviour. Where revenues are required, we would encourage legislation that places incentives effectively.

E.D. Grindstaff
President
Procter & Gamble Inc.

PROCTER & GAMBLE INC.

Post Office Box 355, Station "A", Toronto, Ontario, Canada M5W 1C5 Telephone (416) 730-4711 Fax (416) 730-4122 Telex 069-86195

DISPOSABLE DIAPER INITIATIVES

As we enter the 1990s, disposable diapers are the overwhelming choice of most Canadian parents. Close to 75 percent of diapering parents use disposables exclusively, and over 90 percent use them for some of their babies' changes.

Even so, disposable diapers contribute less than two percent to municipal solid waste in Canada.

Procter & Gamble is striving to reduce that small percentage even further by instituting major changes in our products and packaging as well as by researching alternative methods for disposing of used diapers.

REDUCTION

Since 1986, Pampers and Luvs diapers:

- have reduced diaper volume and thickness by over 50 percent through the use of more efficient absorbent gelling material in the absorbent core of the diaper.
- have reduced retail packaging material volume by over 90 percent through the introduction of the thinner product, lighter-weight packaging and by compressing the product before packaging.
- have reduced corrugated shipping container volume by over 50 percent.

In addition to our reduction efforts, Procter & Gamble is involved in innovative experiments in diaper composting and recycling methods. Both composting and recycling are widely-recognized as significant parts of the overall solution to waste management, and both are growing in popularity in Canada.

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RECYCLING

A Procter & Gamble experiment in Seattle, Washington, will examine the viability of recycling disposable diapers. This pilot project will pick up used diapers of any brand in special recycled plastic bags at curbside. The diapers will be transported to a reclamation center where they will be washed, sanitized and shredded. The two primary ingredients of disposable diapers -- pulp and plastic -- will be separated for individual recycling. The soiled water from the process will go into the municipal sewage system.

The sanitized pulp will be processed and reused in products such as cardboard boxes, computer paper and wall board liner. The plastic will be recycled into products such as flower pots, garbage bags and architectural lumber for landscaping purposes.

Nothing is wasted -- there is even an agricultural use, as a soil conditioner, for the absorbent gelling material contained in disposable diapers.

Here in Canada, our recycling efforts have already begun. Pampers and Luvs plastic packages are recyclable in those communities where recycling programs include plastic films. We are continuing to examine other diaper recycling and composting projects and investigating the use of recycled materials.

COMPOSTING

A Procter & Gamble-sponsored municipal project in St. Cloud, Minnesota, is designed to demonstrate that disposable diapers can be composted along with most biodegradable materials in municipal solid waste to create humus, a form of soil. The resulting humus can be used for common garden use, as a base for laying sod, and to re-establish fertile land along roadways affected by winter salt use.

The large-scale industrial composting containers are enclosed. The process is highly efficient, reducing garbage volume by up to 70 percent. The plastic from the diapers -- which is not composted -- is sent for recycling. The burden on area landfills has been reduced substantially.

While diapers are already part of the waste being composted in St. Cloud, Procter & Gamble is testing the effect of larger quantities of diapers in the process. Because diapers constitute less than two percent of municipal waste, they cannot easily be identified going into the composter. By increasing the quantity of diapers, P & G is able to study the composting process to understand it more fully and ensure the compatibility of disposable diapers.

Preliminary results show that even at higher levels than normal, disposable diapers can be safely and effectively processed. We are currently monitoring the humus curing process and results are expected in July, 1990.

It is estimated that 80 percent of a city's municipal waste can eventually be industrially composted or recycled -- including disposable diapers.

Procter & Gamble is involved in discussions with Canadian municipalities to explore ways in which diapers could be included in modern, large-scale composting programs.

PROCTER & GAMBLE INC.

Post Office Box 355, Station "A", Toronto, Ontario, Canada M5W 1C5 Telephone (416) 730-4711 Fax (416) 730-4122 Telex 069-86195

INDUSTRIAL SOLID WASTE REDUCTION AT P&G'S BELLEVILLE, ONTARIO PLANT

Procter & Gamble is putting its solid waste policy into action throughout its Canadian operations. One of the most significant demonstrations of the potential impact of industrial solid waste reduction efforts has been noted at our manufacturing plant in Belleville, Ontario, where we manufacture Pampers and Luvs.

Early in 1989, the plant's environmental team established a special waste management group to develop and oversee a strategic plan for waste reduction based on the following priorities:

-- To strive to minimize the plant's contribution to landfill with an ultimate target of sending no plant materials to landfill
-- To adhere to the "Three R's" of solid waste management: reduction, reuse & recycling
-- To establish the Belleville facility as a community model
-- To continue to meet or exceed legal requirements on all compliance issues

The results of the program to date -- just 18 months after implementation -- are extremely encouraging. The Belleville plant has:

-- Reduced the amount of solid waste going to landfill by 84 percent

-- Turned a projected cost into a revenue-generating item through development of environmentally - desirable after-markets. Previous waste materials are being sold to other manufacturers for recycling or for other uses.

Work is continuing at the Belleville plant to develop additional recycling uses for other plant waste materials, and similar programs are underway at other Procter & Gamble plants throughout Canada and the U.S.

The non-cellulose portions of disposable diapers are the elastics, plastic tapes, topsheets, backsheets and absorbent gelling material.

BIODEGRADABLE PLASTICS

Technology exists to produce a "degradable" plastic using starch incorporated in the plastic. Procter & Gamble believes that alternative methods of diaper disposal -- recycling and composting -- are preferable to use of biodegradable plastics because:

-- "Biodegradable" plastics are not recyclable and actually divert materials from recycling and reclaiming efforts.

-- There is no scientific evidence available to back claims that cornstarch-based plastics degrade in modern landfills any faster than other materials. Also, the compostability of biodegradable plastics is yet unknown. For now, this ensures that these plastics will end up in landfill.

-- Diapers claiming to be "biodegradable" use significantly more plastic in the backsheet than is used in most diapers.

PROCTER & GAMBLE'S PERSPECTIVE ON BIODEGRADABLE PLASTICS

Current evidence strongly indicates that the use of biodegradable plastic in disposable diapers will not materially contribute to a solution to landfill volume reduction. Furthermore, the environmental consequences of "biodegradable" plastics in landfills are unknown.

Indeed, the Recycling Council of Ontario and the Ontario Recycling Action Committee have called for a moratorium on the use of degradable plastics. Pollution Probe and the Quebec Ministry of the Environment have called for caution in the use of these plastics until more is known about what happens when and if they decompose.

To further our understanding of this matter, we are sponsoring a study by Dr. Robert Ham of the University of Wisconsin to monitor the fate of disposable diapers buried in landfills.

Through this and other studies, Procter & Gamble is taking a close and careful look at biodegradable plastics. If they turn out to be a constructive way to address the landfill problem, we will pursue this avenue actively in addition to our recycling and composting efforts.

Although current scientific evidence does question the value of biodegradability in landfill sites, we will continue working within the company and with our outside suppliers to try to understand the impact of potential new materials.

PROCTER & GAMBLE INC.

Post Office Box 355, Station "A", Toronto, Ontario, Canada M5W 1C5 Telephone (416) 730-4711 Fax (416) 730-4122 Telex 069-86195

INFANT SKIN CARE BENEFITS OF DISPOSABLE DIAPERS

Disposable diapers made using modern absorbent technology have major infant health benefits over cloth diapers.

Absorbent Gelling Material (AGM) was incorporated into Procter & Gamble's diapers in the mid-1980s with the introduction of Ultra Pampers. Because of its greater effectiveness, this technology has allowed disposable diapers to be much thinner and less bulky than before.

The AGM used in Ultra Pampers and Luvs is a form of polyacrylate which is able to absorb and retain many times its own weight in liquid. It works by combining with urine to form a gel in the diaper's core. Wetness is locked away and cannot be squeezed back against baby's skin or mix with feces to cause diaper rash.

Clinical and in-use testing conducted by Procter & Gamble and by independent researchers confirms that diapers with AGM keep baby's skin drier and closer to its normal pH, thus helping to reduce diaper rash.

P & G's own research has dealt with thousands of babies in home and day care situations, including children with normal, dry and sensitive skin. Tests indicate that use of diapers with AGM results in a reduction in the severity of diaper rash and a lower incidence of serious diaper rash compared to cloth or conventional disposble diapers.

In addition sixteen peer-reviewed papers about disposable diapers have been published by independent researchers in medical and scientific journals since 1986.* All provide additional evidence of the effectiveness of AGM diapers in providing significant skin care benefits.

Prior to the introduction of Ultra Pampers, this total body of research, including extensive safety data, was reviewed by a panel of scientific and medical experts from the fields of paediatrics, paediatric dermatology, toxicology, nursing and public health. The panel confirmed the research and found that modern diapers containing AGM are both safe and effective.

* see attached bibliography

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PROCTER & GAMBLE INC.

Post Office Box 355, Station "A", Toronto, Ontario, Canada M5W 1C5 Telephone (416) 730-4711 Fax (416) 730-4122 Telex 069-86195

RELATIVE ENVIRONMENTAL IMPACT OF DIAPERING SYSTEMS

Three separate life cycle studies* (two in the United States, one in Western Europe) comparing disposable and cloth diapering systems have concluded that neither system is clearly superior. The varying resource and environmental impacts of the two systems are different but equivalent.

When washing and drying requirements are taken into consideration, cloth diaper usage consumes more energy resources and water and results in greater air and water pollutant emissions. In addition, because cloth diapers are less absorbent than paper diapers, more cloth diapers per week are required for the average baby. Disposable diapers, on the other hand, consume more raw materials and generate more post-consumer waste.

Procter & Gamble is committed to minimizing the impact of its diapers on the environment. Although the bulk of paper diaper raw material is pulp from trees, which are renewable resources, P&G's move to ultra-thin diaper technology has resulted in a significant reduction in the amount of pulp needed. In addition, Procter & Gamble's reforestation programs ensure that we plant enough new trees to allow for natural losses and still ensure that the annual growth equals or exceeds the annual harvesting for use in paper diapers.

Although disposable diapers account for less than two percent of municipal solid waste in Canada, P&G is striving to reduce that impact even further. We have shown that disposable diapers can be composted as part of a large-scale municipal composting project, and we are examining the feasibility of recycling paper diapers as part of a curbside pickup program.

---

* The results of a fourth life cycle study by Franklin Associates (commissioned by the American Paper Institute) are scheduled to be released in mid-1990.

Printed on recycled paper

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COST COMPARISON OF DIAPERING SYSTEMS

DIAPER SERVICE

On average, the cost of disposable diapers for an infant is less than the cost of a diaper service.

In 1986, Procter & Gamble studied the diapering habits of 1,362 mothers with babies three years and under. In all, more than 25,000 diaper changes were part of our research. This study revealed that many parents use two or three diapers at a time if they use cloth diapers. In addition, they change their babies more often. The reason is simple: cloth diapers are less absorbent.

	Brand name Disposables	Reusable Cloth Diapers
Changes per day	5.4	6.4
Diapers per change	1.0	1.5
Diapers per day	5.4	9.7
Diapers per week	38	68

Based on a national survey of diaper services, cloth diapers delivered to the home cost about $13.65 per week (including the price of plastic/rubber pants). The cost per week for Pampers -- including the average cost of municipal waste handling and treatment -- is about $11.48 per week. (Based on A.C. Nielsen prices).

The bottom line: parents who use a cloth diaper service spend about $2.17 per week more than parents who use Pampers.

HOME LAUNDERING

Considering the major cost factors -- including purchase price of conventional cloth diapers, electricity for washing and drying (not only the diapers but also the extra bedding and clothing involved), additional water and detergent consumed -- the average parent would save about $30.00 per month by laundering cotton diapers at home compared to using disposable diapers.

When convenience, leakage protection, skin care benefits and -- most importantly -- the value of parents' time are added to the equation, disposable diapers appear to be a better value for the overwhelming majority of Canadian parents.

PROCTER & GAMBLE INC.

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HEALTH QUESTIONS CONCERNING DIAPER DISPOSAL

Disposable diapers do not pose a health risk of any kind to either sanitation workers or to the general public. This is confirmed by both government and independent research:

-- Disposable diapers have been used by consumers in North America for the past 30 years and in Europe for more than 50 years. During this time, no public health problem has been attributed to their use or disposal.

-- Ninety-nine percent of the viral content of landfills comes from sewage sludge and animal feces. Only one percent is from diapers.

-- Viruses and bacteria do not escape from properly operated landfills. Studies have shown that landfill leachate (i.e. the liquid run-off) inactivates both viruses and bacteria.

-- A 1980 report by the U.S. Environmental Protection Agency (EPA) states: "There is not one sound epidemiological study correlating an outbreak of infectious disease in this country with...solid waste."

-- Studies have shown that landfill and sanitation workers are no more prone to viral illness than the general public.

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Post Office Box 355, Station "A", Toronto, Ontario, Canada M5W 1C5 Telephone (416) 730-4711 Fax (416) 730-4122 Telex 069-86195

PRODUCING PULP FOR PAPER DIAPERS

There are two major methods currently being used to produce the pulp needed to make paper products: the more widely-used kraft pulp process and the chemi-thermal-mechanical process (CTMP).

Questions have been raised regarding the environmental impact of kraft pulp compared to CTMP pulp, particularly concerning production of dioxins (toxic chlorine compounds) and use of timber resources. The processes are different and have different areas for potential impact on the environment. Furthermore, either process can be environmentally acceptable if carefully designed and operated.

WHAT IS BLEACHING?

Bleaching accomplishes two functions in the pulp making process: (1) to remove lignin, and (2) to provide whitening of the fibres. Lignin is a type of natural glue that holds the wood together. Its removal is critical to make pulp fibres absorbent and strong. Whitening is a secondary benefit.

The kraft process (which is used in the manufacture of Procter & Gamble's Pampers and Luvs) yields a more absorbent product than does the CTMP. In the case of diapers, absorbency is essential for drier, healthier skin for babies.

TIMBER USE: KRAFT VERSUS CTMP

Many factors determine the volume of timber required to manufacture diapers. Taking the total resource requirements into account, i.e. wood, fossil fuel, other energy sources, the natural resources required for the pulp in Pampers and Luvs made from the kraft process is estimated to be no greater than for product made from the CTMP process.

While CTMP produces the same amount of pulp using less wood, there are several balancing factors which favour the kraft process:

- -- The kraft process makes more efficient use of the tree as a renewable energy source to run the process, whereas CTMP must seek energy from other sources such as non-renewable fossil fuel or nuclear energy.
- -- There is less pulp needed for Pampers or Luvs diapers because the kraft pulp used is more absorbent.

Procter & Gamble believes that the forest resources it uses must be renewed in a way to insure an adequate supply of trees in perpetuity. To that end, our reforestation program assures that we plant a sufficient number of seedlings to allow for natural losses and still assure that the annual growth equals or exceeds the annual wood removals. In this way, we assure that the resources we use are replaced in kind for use by future generations.

DIOXIN

The pulp and paper industry neither uses dioxins in its bleaching processes nor intentionally manufactures dioxins. It should be noted that even if bleaching could be abandoned, there is no guarantee that this step would eliminate dioxin. Scientists in Sweden have found dioxin even in unbleached pulp. As analytical techniques continue to improve, it may well develop that dioxin, in trace quantities is ubiquitous.

The process used to produce pulp for Procter & Gamble's diapers relies heavily on chlorine dioxide, and has been designed to produce pulp with no detectable level of dioxin. Independent laboratory tests using very sophisticated analytical methods -- which can identify dioxin at levels below one part per trillion -- have confirmed that no dioxin has been detected in our pulp.

Our data and risk assessment have been reviewed by Dr. Ian Munro of the Canadian Centre for Toxicology and by several outside agencies including the U.S. Consumer Products Safety Commission. All of the scientific reviews support the conclusions regarding the complete safety of disposable diapers. In addition, the Environmental Health Directorate of the Health Protection Branch of Health & Welfare Canada has conducted a comparable risk assessment with similar conclusions.

Consumers can be assured they can use Pampers and Luvs with no risk whatsoever.

DIOXINS IN PULP MILL EFFLUENT

No dioxin has been found in the effluent from the plant which produces the pulp for Pampers and Luvs. Additionally, process changes have already been made to further reduce even the potential that dioxin might be generated in the process. Procter & Gamble's standards have always been more stringent than the accepted norms, and the effluent from our plants which utilize extensive waste treatment in addition to special in-plant processes will continue to position P&G as a leader in protection of the environment.

The Pulp and Paper Research Institute of Canada has shown that the effluent from a well-designed bleached kraft pulp process has a lower toxicity than that from the CTMP process.

RECEIVED

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Minister of the Environment
CANADA
Ministre de l'Environnemen

March 1990

Mr. Reg Whynott
Chairman
The Municipality of Hamilton-Wentworth
Box 910, 119 King St. W.
Hamilton, Ontario
L8N 3V9

Mr. Whynott,

The Government of Canada initiated the Environmental Partners Fund (EPF) to encourage the involvement of community groups in improving the quality of the local environment. These partnerships will be the cornerstone of community-based projects to protect and clean up the environment.

This unique program is for non-governmental, non-commercial groups and, the ideas for projects will come from them. The federal government is prepared to fund up to 50 per cent of the project costs. By encouraging community involvement, this program will produce tangible results. I hope you will encourage local businesses and groups to become environmental partners.

You will find enclosed, details about the Environmental Partners Fund. Should you require further information, please complete and return the mail-back coupon.

Yours sincerely,

Lucien Bouchard

Enclosure

Ottawa, Canada K1A 0H3

Environmental Partners Fund

What is the Partners Fund?

It is a Government of Canada initiative which has set aside $50 million over five years to help local groups take action in protecting, preserving, enhancing and restoring the environment at the community level. Working together, we can make a difference in solving Canada's environmental problems.

Why a Partners Fund?

Partnership, a powerful means of co-operation, is essential if we are to solve our environmental problems. The Partners Fund is a way to stimulate partnership and, encourage individuals to get personally involved in cleaning-up the environment through local community-based organizations.

Who can apply for funding?

Only non-governmental, non-commercial groups are eligible, such as:

- service clubs.
- religious, community, charitable and voluntary organizations.
- environmental non-profit and youth groups.
- student and parent-teacher associations.
- trade associations and trade union organizations.
- co-operatives.

If you are not a member of one of these but have an idea for a project, you may organize a group an[illegible]pply to the program.

Who can be a supporting Partner?

Supporting partners provide financial and other assistance and, these may include:

- industry and local businesses.
- private citizens.
- environmental groups and trust foundations.
- provincial, territorial, regional and municipal governments.

What kind of Projects will get funding?

Innovative, action-oriented projects, that protect, preserve, improve and restore the environment in your community, are eligible. The Partners Fund challenges applicants to choose results-oriented projects that improve the local environment, while being encouraged to develop supportive partnerships from within the community.

Potential projects include:

- rehabilitating the natural environment local parks.
- cleaning-up lakes and streams.
- restoring fish and wildlife habitats.
- conserving local water supplies.
- recycling programs (community-based and office paper).
- composting of biodegradable waste.
- collecting hazardous household waste.

The Environmental Partners Fund is designed for either new projects or innovative changes to an existing activity

What kinds of projects are not eligible for funding?

Projects that are required by law or regulation or are the responsibility of federal and other levels of government, are not eligible.

Also not eligible are:

- educational activities, conferences, workshops, exhibitions and promotional materials.
- training programs.
- research activities and feasibility studies.
- purchase of real property (land).
- recreation and beautification projects.

How much can a Partner receive?

The federal contribution, up to fifty percent of the total approved project cost, could be as much as $200,000 over three consecutive years.

Volunteer time can count as part of your contribution. You are encouraged to raise matching funds through establishing relationships with supporting partners.

When can I apply to become a Partner?

Now! The next two deadlines fall on March 1 and June 1, 1990.

Who will decide which projects get funding?

Proposals will be screened for eligibility and reviewed for merit, excellence and degree of

How do I find out more?

If you have questions or would like to receive the application kit, please write or call the nearest Environmental Partners Fund Office.

Newfoundland and Labrador
Environmental Partners Fund
c/o Environment Canada
Northwest Atlantic
Fisheries Centre
P.O. Box 5037
St John's, Newfoundland
A1C 5V3
Phone: (709) 772-5488

Prince Edward Island
Environmental Partners Fund
c/o Environment Canada
Room 320, 97 Queen Street
P.O. Box 426
Charlottetown, P.E.I.
C1A 4K7
Phone: (902) 566-7042

New Brunswick
Environmental Partners Fund
c/o Environment Canada
527 Queen Street
P.O. Box 400
Fredericton, New Brunswick
E3B 4Z9
Phone: (506) 452-3286

Manitoba
Environmental Partners Fund
Environment Canada
266 Graham Avenue
10th floor, Room 1000
Winnipeg, Manitoba
R3C 3V4
Phone: (204) 983-8574

Saskatchewan
Environmental Partners Fund
Environment Canada
241-1901 Victoria Avenue,
Regina, Saskatchewan
S4P 3R4
Phone: (306) 780-6002

Alberta
Environmental Partners Fund
Environment Canada
Twin Atria #2, 2nd Floor
4999 98th Avenue
Edmonton, Alberta
T6B 2X3
Phone: (403) 468-8900

Nova Scotia
Environmental Partners Fund
Environment Canada
15th floor, 45 Alderney Drive
Dartmouth, Nova Scotia
B2Y 2N6
Phone: (902) 426 8521

Québec
Environmental Partners Fund
Environment Canada
3 Buade Street
P.O. Box 6060, Hauteville
Québec, Québec
G1R 4V7
Phone: (418) 648-4296

Ontario
Environmental Partners Fund
Environment Canada
25 St. Clair Avenue East,
6th floor
Toronto, Ontario
M4T 1M2
Phone: (416) 973-7391

British Columbia
Environmental Partners Fund
Environment Canada
700-1200 West 73rd Avenue,
Vancouver, British Columbia
V6P 6H9.
Phone: (604) 666-5887

Northwest Territories
Environmental Partners Fund
Environment Canada
P.O. Box 2970
Yellowknife, NWT
X1A 2R2
Phone: (403) 920-8500

Yukon
Environmental Partners Fund
Environment Canada
700-1200 West 73rd Avenue
Vancouver, British Columbia
V6P 6H9
Phone: (604) 666-5887
(403) 667-3400

CANADIAN LABORATORY
APR MAY 1990

RESEARCH NEWS

'Blue Bottle' captures CFCs, reduces emissions to atmosphere

by Katharine Gray

MISSISSAUGA, ON—Technology to capture and recycle chlorofluorocarbons (CFCs) has been developed by Linde, a division of Union Carbide, in conjunction with Ortech International, an independent research centre, here.

Linde's Blue Bottle contains a molecular sieve which captures CFCs and allows other molecules to pass through. The CFCs can then be recaptured and purified for recycling and reuse.

"The development of this process evolved during proprietary work involving Ortech in a related application," said Dusanka Filipovic, manager of New Business Development at Linde. The silica-like molecular sieve product, originally developed at Union Carbide, is a crystalline, inorganic, non- reactive compound which selectively absorbs a wide range of CFC compounds within the honeycomb-like crystal, leaving the effluent gas CFC-free. Current tests indicate 95% of the CFCs can be recaptured.

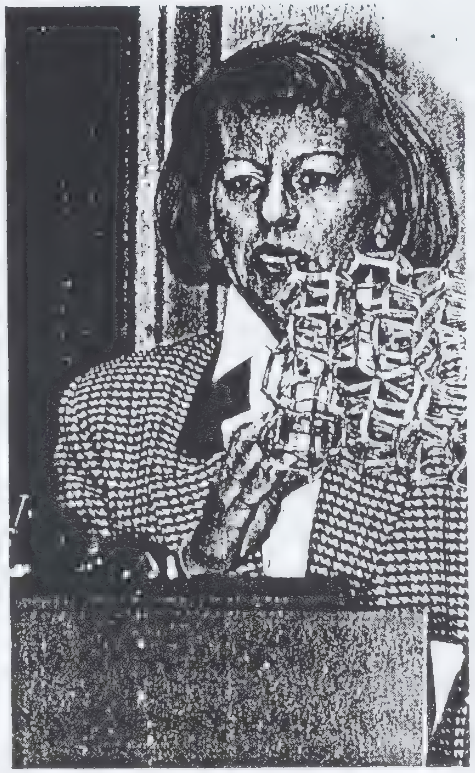
In the recovery process, an inert carrier gas is heated and passed through the bottle. CFC is volatilized and swept out of the bottle into a high-efficiency condenser for liquefaction, and then into a collector. Purity is in the range of 99.9% by GC-MS. Both the compound and the bottle are reusable.

Proposed amendments to the Environmental Protection Act call for a rapid phase-out of CFCs, however until environmentally acceptable replacements are developed and instituted, there are many applications where CFCs will continue to be used. The immediate need is to reduce the emission of CFCs into the atmosphere as much as possible—it is crucial that CFC recycling programs begin, said Filipovic.

"Until recently, the technology to capture CFCs required highly sophisticated low-temperature cooling systems and huge pressure vessels," she said. The Blue Bottle is portable, lightweight, and easy-to-use, making it practical for use by repair personnel. The research project to develop this technology includes the development of a pilot scale recycling centre to clean and repackage the CFCs. Linde has invested $300,000 to develop and patent the process, and the Ontario Ministry of the Environment will initially contribute $86,000 for further research between Linde and Ortech.

It remains to be determined who will use the Blue Bottles and collect CFCs, but it is expected that a licensing program will be developed. Linde will collect the Blue Bottles and take them to the central processing facility.

Ortech has two major investigative thrusts in the project—a bench scale laboratory program to confirm how successfully a whole range of CFCs, as well as some of the new substitute materials being developed by the major CFC manufacturers, can be absorbed, recovered and recycled; and examining potential sources of CFC emission to the atmosphere to determine where and how the technology can be applied in a practical and cost-effective manner, said Dr. Robert Laughlin, manager of Biotechnology and Chemical Engineering, Ortech.


Inventor Dusarka Filipovic holds a model of the molecular sieve that captures CFCs

The CFC-capturing process is already being used on a semi-commercial basis for CFC-like compounds, said Neil Weaver, vice-president of Linde. CFC recovery is believed to be applicable to commercial systems such as automobile air-conditioning units and refrigerators—either as they're being repaired or scrapped—the manufacture of some plastic compounds, and for the CFCs used as solvents for blowing agents. In blowing operations, about 20% of the CFC used is lost at the time the foam is blown—it is at this point where the technology has an excellent application, he said.

Presently, commercialization of the Blue Bottles has not been fully developed, but the bottles will be "sufficiently low-cost that they should have broad applications in industrial and residential markets," said Weaver. He estimates the Blue Bottle will cost under $100. Ω

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or Elected [illegible] and Senior Managers
of [illegible] Cities

CITIES AND THE ENVIRONMENT: Our Interdependent Future

Program details inside

ORGANIZED BY THE
Canadian Urban Institute
WITH
l'Institut national de la recherche scientifique (INRS) – Urbanisation
IN COOPERATION WITH THE
Federation of Canadian Municipalities

CITIES AND THE ENVIRONMENT: Our Interdependent Future

Porte Kent Room
Hilton International Hotel
Quebec City, June 2, 1990

8:00 am **Light Breakfast**
8:30-8:45 am **Welcome Address**

Céline Le Bourdais, Director, Institut national de la recherche scientifique - Urbanisation, Montreal, Quebec

8:45-10:30 am **Speaker & Panellists**

- Update on Environmental Trends
- Impacts on Urban Systems and Local Government
- Public Perceptions and Political Impacts

Speaker:

André Beauchamp, Former Director, Bureau d'audiences publiques sur l'environnement, Quebec

Panellists:

Colin Isaacs, Environmental Policy Consultant, formerly Executive Director of Pollution Probe, Stoney Creek, Ontario

Mark Schwartz, Councilman, Chairman: Energy, Environment, and Natural Resources Committee, National League of Cities, U.S.A., Adjunct Professor of Environmental Law, Oklahoma City University, Oklahoma City, Oklahoma

Jeanne Wolfe, Director, School of Urban Planning, McGill University, Vice-President, Advisory Committee, Commission d'enquête sur les dechets dangereux, Montreal, Quebec

10:30-11:00 am **Break**

11:00-12:00 am **Case Studies**

- Illuminating examples from across Canada

William M. Carson, Chief Administrative Officer, Hamilton-Wentworth Hamilton, Ontario

Anne Muecke, Griffiths Muecke Associates, Environmental Planning Consultants, Halifax, Nova Scotia

Claude Vincent, Director, Engineering Service, Quebec City, Quebec

12:00-1:30 pm **Lunch/Speaker**

- International Context for Canadian Municipal Action

Words of Welcome: **Mayor Jean-Paul L'Allier** Quebec City, Quebec

Jodi Jacobson, Senior Researcher, Worldwatch Institute, Washington, D.C.

1:30-3:00 pm **Who Pays?**

- Financing Options for Municipal Environmental Initiatives
- Intergovernmental Context
- Environment, Economy and Social Links

Pierre J. Hamel and **Marcel Gaudreau**, Researchers, Institut national de la recherche scientifique - Urbanisation, Montreal, Quebec

Philip Jessup, Policy Advisor, Friends of the Earth, and the City of Toronto Special Advisory Committee on the Environment, Toronto, Ontario

Michael McPhee, Programs Coordinator, Fraser River Estuary Management Program New Westminster, British Columbia

AND TH ENVIRO[illegible]MENT: Our Interdependent Future

C.E. McIntyre, Executive Director, Approvals and Engineering, Ontario Ministry of the Environment, Toronto, Ontario

3:00-3:30 pm **Break**
3:30-4:30 pm **Who Implements?**
(Round Table Panel)

- How Municipalities can Mobilize to Respond

Jeb Brugmann, The International Secretariat for Local Environmental Initiatives, The North American Congress for a Stratospheric Protection Accord, Centre for Innovative Diplomacy, Cambridge, Massachusetts

Ulric Chainé, President, Corporation de Gestion "Charmes", Municipal Councillor, Sherbrooke, Quebec

Ron Clarke, Chief Administrative Officer, Regional Municipality of Ottawa-Carleton, Ontario

Diane Deschamps, Coordinator, Integrated Waste Management Program, City of Montreal, Quebec

Bob Linner, City Manager, Regina, Saskatchewan

Jean-François Léonard, Professor Department of Political Science, Interdisciplinary Research and Analysis Group on Environmental Management, Université du Québec à Montréal, Montreal, Quebec

4:30-5:00 pm **Closing Remarks**

Richard Gilbert, President, Canadian Urban Institute, Toronto, Ontario

5:00 pm **Social Hour**

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Ministry of Transportation
Ministère des Transports
Ontario

Ferguson Block, 3rd Floor
77 Wellesley St. West
Toronto, Ontario
M7A 1Z8

Office of the Minister
Bureau du ministre

3(u)

April 25, 1990

Mr. John Prentice
Chairman
Chairman's Advisory Committee
on Environmental Issues
Regional Municipality of Hamilton-Wentworth
P.O. Box 910
Hamilton, Ontario
L8N 3V9

Dear Mr. Prentice:

My colleague the Honourable John Sweeney has advised me of your concern about the Bruce Trail Crossing of the proposed highway in the Red Hill Creek Valley, which is currently being designed by staff of the Regional Municipality of Hamilton-Wentworth.

The proponent for the new road is the Regional Municipality and responsibility for incorporating features to deal with existing travelled routes in the valley rests therefore with the municipality. The Ministry of Transportation is contributing towards the cost the project and I am pleased to advise that we prepared to share the cost of the most appropriate means of addressing the concern that you have raised.

I understand that the Environmental report for the project did envision a road and pedestrian crossing of the valley, to replace the existing Mud St., in the vicinity of the existing Bruce Trail. Such a route would have provided a convenient crossing point for the Bruce Trail users. As a result of further review, and public input, I understand that the Regional Municipality is considering the elimination of this crossing. While this action may be appropriate, we are anxious that the best overall solution be chosen by the Regional Municipality, to ensure that the interests of local residents, trail users and road users are served.

I have sent a copy of this letter to Mr. Reg Whynott, Chairman of the Regional Municipality of Hamilton-Wentworth and to Councillor Don Ross, who is Chairman of the Project Steering Committee, in order to confirm our readiness to provide financial support for the solution chosen by the Region. You may wish to follow up the matter further with the Regional Municipality so that the Project Steering Committee is made fully aware of your concerns.

We certainly share your interest in maintaining the unique nature of the Trail and look forward to a successful resolution of this matter.

Sincerely,

WILLIAM WRYE
Minister

cc: Hon. John Sweeney, Minister of Municipal Affairs
R. Whynott, Chairman Reg Mun of Ham-Wentworth
D. Ross, Chairman Freeway Steering Committee
D. Turvey, Project Director,Reg Mun of Ham-Wentworth

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HAIRMAN'S ADVISORY COMMITTEE ON ENVIRONMENTAL ISSUES

AGENDA

DATE: Thursday, July 12, 1990

TIME: 8:30 o'clock a.m.

PLACE: Committee Room, 15th Floor
Regional Offices

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1. GENERAL

a) **Declaration of Interest** re: Municipal Conflict of Interest Act
b) **Minutes of Chairman's Advisory Committee on Environmental Issues Committee Meeting - June 14, 1990**

2. NEW BUSINESS

2.1 **Review Terms of Reference**

a) Present Terms of Reference
b) Draft of Revised Terms of Reference

2.2 **Former Brampton Street Landfill Site**

Referred from Engineering Services Committee

2.3 **Correspondence from Mayor S. R. Napper, City of Stoney Creek, re: Niagara Escarpment Plan Amendment 52/89**

Note: The purpose of the amendment is to delete waste disposal and related uses as a permitted use in the Escarpment Natural, Protection and Rural areas and the Mineral Resources Extraction Areas. This amendment was not approved.

Referred from Engineering Services Committee

2.4 **Environmental Purchasing: Paper Products**

For consideration

July 12th

3. FOR THE INFORMATION OF THE COMMITTEE

   a) Disposal of Household Hazardous Wastes
   b) Mandatory Recycling
   c) Zebra Mussels

4. ADJOURNMENT

1-b)

MINUTES OF THE CHAIRMAN'S ADVISORY COMMITT ON ENVIRONMENTAL ISSUES

The Chairman's Advisory Committee on Environmental Issues met at 8:30 a.m. on Thursday, June 14, 1990 in the Committee Room, 15th Floor, Ellen Fairclough Building, Hamilton.

Present:	Chairman (Councillor) J. Prentice Councillors G. Copps, B. Hinkley Prof. K. Murphy, Wm. Pedder, R. Baetz P. Muldoon, B. McHattie
Also Present:	Councillor T. Cooke Messrs. J. Halliday, N. Ratgetlie, Wm. Pierce, G. Ostofi, J. Vogt, Ministry of the Environment Ms. D. Edwards, B. Goodger L. A. (Barry) Thompson, representing C. Katz

1. GENERAL

a) **Declaration of Interest** re: Municipal Conflict of Interest Act - none

b) **Minutes of Chairman's Advisory Committee on Environmental Issues Committee Meeting - May 10, 1990**
(Pedder/McHattie) CARRIED

PRESENTATION: Presentation of Certificate of Appreciation to Bell Cellular (Hamilton Branch) for their service in emergency management.

Councillor Prentice made the presentation to Jerry McNeil and Lou Arcari of Bell Canada for their participation in an emergency roll, by providing eight telephones and approximately sixty hours of talk time with the Police Department, Ambulance Service, Fire Department, etc.

2. NEW BUSINESS

2.1 Review Terms of Reference

The Sub-Committee requested that the five areas now covered by the Terms of Reference be expanded into eight sub-committees. The secretary was requested to prepare a "form", and circulate so that the members could indicate their preference to time, day, and date for meetings. The members requested copies of the resumes of those citizens not accepted to serve on the Sustainable Development Task Force, so that they could review the resumes for possible members to serve on the sub-committees.

2.2 Educational Tours on Environmental Interest

Councillor Hinkley indicated that we have a tendency to sell ourselves short. He advised that Hamilton-Wentworth has companies and facilities that cover most of the environmental issues that concern us. Councillor Hinkley suggested getting these organizations to a point where they could be used as a promotional tool for seminars and conventions that will be located in Hamilton-Wentworth. Tours could be arranged with these companies and agencies.

Councillor Hinkley suggested that a sub-committee review and catalogue are present resources in Hamilton-Wentworth, and prepare a promotional brochure. **(Hinkley/Muldoon)**

That this item be referred to the Sub-Committee on Education. CARRIED

2.3 Correspondence from Rashne N. Baetz regarding the following subjects:

i) Energy conservation, lights left on in office towers. **(Baetz/McHattie)**

That this Item be referred to the Sub-Committee on Energy. CARRIED

ii) Closed and abandoned Landfill sites.

Mr. Baetz would like to see more sampling done on Landfill Sites. Ms. Goodger indicated that any information that the Region has will be made available to a sub-committee.

Councillor Cooke asked about leachate from Steetley on to Conservation Authority Property, and he was advised by Mr. Vogt, that the leachate is being monitored. Steetley had installed testing devices three to four years ago. Mr. Pedder wondered why it takes two years to get reports of this nature.

Mr. Vogt indicated that K. Drage Park, itself, does not cause an environmental problem as pollution is coming in upstream from this site. It would appear that combined sewer overflows are contributing to the problem at the present time.

(Murphy/Thompson)

That this item be referred to the Sub-Committee on Water Quality. CARRIED

2.4 Correspondence from D. J. Robinson on behalf of Greensville against Serious Pollution regarding all operations at the Steetley Landfill Site
(Baetz/McHattie)

That the problems with respect to Leachate at the Steetley Landfill Site be addressed, and that the Consultant's report to the Region be brought back to this Committee for review. CARRIED

(Muldoon/Murphy)
That the Commissioner of Legal Services be directed to specifically address the issue of Leachate collection and treatment at the Steetley Industries Brown Landfill Site at the Environmental Assessment Board Hearings. CARRIED

2.5 Use of Styrofoam cups in City buildings.

Section 12 of the Finance and Administration Committee. Also, correspondence from Councillor T. Murray.

Councillor Hinkley suggested that styrofoam cups not be used in any Regional facility. The City and Region should form a joint committee to review the policies on recycling and look at all products being used. Councillor Hinkley indicated that we should not be making recommendations without staff input.
(Keith/Pedder)

That this Item be referred to the Administrative Committee. CARRIED

2.6 Resolution - County of Wellington, re: Use of Tire Derived Fuel.

Councillor Copps asked about pollution created when tires are burned, and was advised by Mr. Halliday that the temperature of the burn determines the pollution. A very high temperature results in "none" to "very little" pollution.

(Copps/Murphy)

That this Item be referred to the Sub-Committee on Air Pollution.
CARRIED

2.7 Hospital Incinerators

This issue was referred to this Committee from the Engineering Services Committee meeting on May 28, 1990.

(Copps/Murphy)

That Mr. Pedder do a review of hospital incinerators and bring back a report to this Committee. CARRIED

3. FOR THE INFORMATION OF THE COMMITTEE

a) **Establishment of Terms of Reference for the evaluation of environmentally sensitive areas and policies/Co-operation with the Hamilton Naturalist Club regarding preparation of a biological inventory (PLA 90-059)**
(Muldoon/Baetz)

Mr. Hornell and Mr. Pearce reviewed the Report with the members

Mr. McHattie has volunteered to serve on the Submisisons Overview Committee.

That this Report be endorsed. CARRIED

(Copps/Pedder)
b) Balloon Man of Canada - Regarding the release of balloons.
c) Tire fire offers Environmental Lesson. CARRIED

d) **Region Wrestling with By-Law to Protect Ozone.**
(Copps/Baetz)

Ms. Edwards indicated that the was still working on this report.

That Mr. J. Tapley be requested to assist in the preparation of this by-law. CARRIED

(Copps/Pedder)
e) Letter from Mr. J. Bradley, Minister, Ministry of the Environment, on steps the Ministry is taking with respect to CFC's.
f) New supply contract arrangements for recyclable glass now available from Consumer's Glass.
g) Letter from Mr. J. Sweeney, Minister, Ministry of Municipal Affairs, regarding Bruce Trail access, advising that our letter has been forwarded to the Minister of Transportation.

h) Correspondence from General Motors of Canada and what they are doing to protect the environment.
i) Scrap tire update.
j) Destruction of the ozone layer - correspondence from the Mayor of Winnipeg and related information.
k) Correspondence from APAE indicating their assistance in reducing the amount of waste that city employees produce.
l) Correspondence from Re-Met Processing Inc., regarding their Iron Oxide Recycling Project.
m) Cigarette Smoking.
n) Correspondence from Ontario Waste Management the Metropolitan Toronto Works' Department on Organic Yard Waste Composting.
o) Correspondence from the Metropolitan Toronto Works' Department on Organic Yard Waste Composting.
p) A report authorized by the MInister of the Environment, "A Framework for Discussion on the Environment".
q) Correspondence from Procter & Gamble, Inc., expressing their thanks for the opportunity to address the Committee, also attached is their policy on the following subjects:

  i) Solid Waste
  ii) Solid Waste Policy Overview
  iii) Disposable Diaper Initiatives
  iv) Industrial Solid Waste Reduction At P&G's Belleville, Ontario Plant
  v) Biodegradability
  vi) Infant Skin Care Benefits Of Disposable Diapers
  vii) Relative Environmental Impact Of Diapering Systems
  viii) Cost Comparison Of Diapering Systems
  ix) Health Questions Concerning Diaper Disposal
  x) Producing Pulp For Paper Diapers
r) Correspondence from the Minister of the Environment, regarding the "Environmental Partners Fund".
s) Article on CFC's, entitled, "Blue Bottle" captures CFC's, reduces emissions to atmosphere.
t) Canadian Urban Institute Seminar and Workshop, June 2, 1990 - Cities and the Environment, Our Independent Future.
u) Correspondence from William Wrye, Minister, Ministry of Transportation, regarding The Bruce Trail Crossing of the Red Hill Creek Expressway.

CARRIED

4. OTHER BUSINESS

a) The members requested the use of the resumes on Sustainable Development for use in selecting members for our sub-committees. The secretary will request the resumes from the Planning Department.

b) Wm. Pedder inquired if oil could be used to control dust on roads. Mr. Vogt advised that used oil was not allowed on roads for dust control.

c) Mr. Pedder wanted to know how many people had been fined for littering. Councillor Hinkley replied that no one had been fined to date. He also advised that an officer had been approved but not yet hired.

d) Mr. Pedder inquired about work being done on a hydro line, on Wilson Street, between Elgin and Stirton Streets, and if this line was leaking. Councillor Hinkley advised that he had sent a letter to Hydro requesting an answer.

4. On Motion (**Hinkley/Pedder**) the meeting **ADJOURNED** at 11:15 a.m.

CARRIED

Chairman

Secretary

2.1 a)

CHAIRMAN'S ADVISORY COMMITTEE ON ENVIRONMENTAL ISSUES

TERMS OF REFERENCE

The Advisory Committee has the mandate to enquire into and to report, through the Engineering Services Committee, on matters relating to:

1. Solid Waste

   a) Policies and procedures for the effective management of solid waste

   b) New technologies, policies and ventures, and strategic distribution of the waste stream for:

      i) waste reduction
      ii) Glanbrook Landfill Site and Transfer Stations
      iii) S.W.A.R.U. energy from waste facility

   c) Recycling opportunities

   d) Planning and development of a process for the disposal of contaminated materials

2. Hamilton Harbour Remedial Action Plan

   a) Review and comment on recommendations related to the rehabilitation of the Hamilton Harbour

   b) To act as the Region's liaison with the Hamilton Harbour Remedial Action Plan Stakeholders Group

3. Municipal Industrial Strategy for Abatement (MISA)

   Monitor, review and report on matters relating to Provincial legislation governing MISA.

4. Natural Areas

   Assist, review and comment on environmental matters relating to Natural Areas.

5. Public Education/Information

   To provide a forum for members of the public to become aware of and share in matters relating to the environment.

Schedule I

Proposed Environmental Committee

Title "Chairman's Advisory Committee on Environmental Issues"

Reports To Engineering Services Committee

Duration To be reviewed after each Term of Council

Composition 10 Members as follows:

4 Regional Councillors
Vice-Chairman, Engineering Services Committee -
  - Councillor John Prentice

3 to be appointed by Council -
  - Councillor Geraldine Copps
  - Councillor Brian Hinkley
  - Councillor Henry Merling

3 Environmentalists	- Paul Muldoon Hamilton Environmental Action Team (H.E.A.T.)
	- Rashna Baetz Conserver Society of Hamilton District
	- John Struger Hamilton Naturalist Club
1 Business Representative	- Cuppy Katz Cuppy Katz Enterprises Inc.
1 Academic Representative	- Prof. Keith Murphy Department of Civil Engineering McMaster University
1 Labour Representative	- Bill Pedder International Union of Operating Engineers

Schedule I

Chair	Vice-Chairman of the Engineering Services Committee
Vice-Chair	Citizen Member to be appointed at first meeting
Special Advisors	One representative from the Ministry of Environment Commissioner of Engineering or designate(s)
Support Staff	To be provided by the Engineering Department

2.1(b)

DRAFT

CHAIRMAN'S ADVISORY COMMITTEE

ON ENVIRONMENTAL ISSUES

TERMS OF REFERENCE

The Advisory Committee has the mandate to enquire into and to report, through the Engineering Services Committee, and to other Standing Committees where required, on matters relating to:

Natural Areas

Solid Waste

Transportation

Water Quality

Air Pollution

Energy

Environmental Goals

Education: **NOTE:** To provide a forum for members of the public to become aware of and share in matters relating to the environment.

A Councillor need not be a sub-committee Chairman (due to their time constraints) but a representative of the CACEI **must** serve on each sub-committee as chairperson.

Members of Sub-Committee

- 3-4 subcommittee members/subcommittee to be sought by chairpeople and to be appointed by same
- members to be chosen with technical expertise
- members to be chosen who are environmentalists with experience
- to meet as required and deal with Item referred, and those issues deemed to be within their area.

Schedule 1

DRAFT

Proposed Environmental Committee

Title	"Chairman's Advisory Committee on Environmental Issues"
Reports To	Engineering Services Committee/Economic Development and Planning Committee/or other Committee if necessary
Duration	3-Year Term coinciding with term of council and members to stand for re-appointment at that time
Composition	13 Members as follows:

4 Regional Councillors
Vice-Chairman, Engineering Services Committee -
- Councillor John Prentice

3 to be appointed by Council
- Councillor Geraldine Copps
- Councillor Brian Hinkley
- Councillor Henry Merling

3 Environmentalists	- Paul Muldoon Hamilton Environmental Action Team (H.E.A.T.) - Rashna Baetz Conserver Society of Hamilton District - Brian McHattie Hamilton Naturalist Club
1 Business Representative	- Cuppy Katz Cuppy Katz Enterprises Inc.
1 Academic Representative	- Prof. Keith Murphy Department of Civil Engineering McMaster University

1 Labour Representative - Bill Pedder
International Union of Operating Engineers

- Hamilton Region Conservation Authority

- Hamilton Board of Education

1 Citizen Member - L. A. (Barry) Thompson
Environmental Engineer
Intermetco Ltd.

Chair	Vice-Chairman of the Engineering Services Committee
Vice-Chair	Citizen Member to be appointed by members of the Committee at first meeting of the new term
Special Advisors	One representative from the Ministry of Environment/Commissioner of Engineering or designate(s)
Support Staff	To be provided by the Engineering Department/Planning Department/other departments when required
Replacing Members	Members missing two meetings without satisfactory explanation should be recommended to Council for a replacement or asked if they wish to resign

ADDENDUM

Sub-Committee	Chairperson
Natural Areas:	Brian McHattie/Conservation Authority rep.
Solid Waste:	Rashne Baetz
Transportation:	Bill Pedder
Water Quality:	Keith Murphy
Air Pollution:	Cuppy Katz/Barry Thompson
Energy:	L. A. (Barry) Thompson
Environmental Goals:	Paul Muldoon
Education:	Board of Education representative

Receiving: Reports/Information

Items relating to environmental issues pertaining to, but not necessarily restricted to the eight subcommittee subjects should come to the CACEI first (wherever possible) should doing so not mean inaction on an emergency issue which requires immediate action - should this occur the issue should come the CACEI for review following action taken.

Chairperson of CACEI to scrutinize items on other committees' agendas for items for referral to this committee.

Structure:

Committee members from the public cannot realistically be asked to attend morning meetings and councillors cannot attend evening meetings, therefore, it is suggested that a compromise be put forward of meetings occurring from 4:30 p.m. to 7:00 p.m..

Staff representatives should be present at CACEI meetings where required by nature of items on agenda.

Any outstanding items should be listed at the bottom of each agenda until they are satisfactorily completed.

Sub-Committee start-up date proposed for September.

THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

Department of Engineering
71 Main Street West, Hamilton, Ont. L8N 3T4

Tel. (416) 546-4170
Fax (416) 526-6665

2.2

Refer to File No. E309-21
Attention of V.Terluk
Your file No.

April 27, 1990

Mr. Chairman and Members
Engineering Services Committee

Former Brampton Street Landfill Site

Members of the Committee:

ENG 90-264

ORIGIN

At its April 23, 1990 meeting, Engineering Services Committee requested the Commissioner to provide a general status report on the former Brampton Street Landfill site in Hamilton.

ANALYSIS

This five hectare site is located north of Brampton Street between the Redhill Creek to the East and North, and the Woodward Avenue Water Pollution Control Plant to the West.

The facility accepted approximately 500,000 tons of various wastes during its operating life. Most of this waste was residential, but some sewage sludges and foundry sands were also disposed of near the end of the site's 24-year operational life (1950 to 1974).

After the formal closure, the landfill site ownership was transferred to the City of Hamilton, which is responsible for the site's end use. The Region's responsibility is to continue to carry out environmental monitoring as defined in the Regional Environmental Monitoring Program which the Ministry of the Environment and Regional Council approved in the Fall of 1981.

Findings in a recent study by Terraqua Investigations Ltd., who were commissioned to determine the validity of the site testing program, revealed "that there appears to be no real evidence of contamination in Redhill Creek directly attributable to the landfill". The Terraqua recommendation also suggested that the Region continue to monitor the site at two new sampling points to better determine the effect of the landfill on the creek water quality.

As a part of the Freeway Project preliminary design process, Regional Council authorized Conestoga-Rovers & Associates, an engineering consultant, to evaluate the possible impact that the former landfill site could have on the design and installation of the proposed roadway.

Cont'd .....

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The principal objective of the study was to determine what degree of environmental contamination can be expected during construction. The Conestoga-Rovers strategy proposed the installation of three monitoring devices between the landfill and the creek to intercept leachate, which could be collected and analyzed to determine its degree of contamination. An additional four wells to collect groundwater samples were also proposed. Several rounds of sampling were to be carried out to confirm the accuracy of the test findings.

The actual field work was started and completed during 1989. In a conversation with Engineering Department staff, Conestoga-Rovers officials indicated that a draft of their findings has been submitted to the Minister of Transportation for review. It is expected that the final report on the study findings will not be available to our staff for at least another two months.

The study findings and recommendations will determine what course of action, if any, the Region should be required to take in order to sustain its environmental responsibilities.

RECOMMENDATION

That this report be received for information.

Ted Gill

E.M. Gill, P.Eng.
Acting Commissioner of Engineering

VT:ja

cc: W. Carson, C.A.O.
cc: R. Whynott, Regional Chairman
cc: D. Turvey, Commissioner of Transportation

THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORT

P.O. Box 910, Hamilton, Ontario L8N 3V9

RECEIVED

REC

2.3

City of Stoney Creek

Memo

Refer to File No
Attention of
Your File No.

To Regional Chairman R. Whynott
Date April 30, 1990
From Mayor S.R. Napper
File No.
Re Niagara Escarpment Plan Amendment 52/89
Dept. Mayor's Office

(ENG 90-332)

While I have not made a practice of reporting to you in the past on any N.E.C. Amendments which come before the Municipal Advisory Committee on which I serve as your representative, I feel that, in this instance, I should.

Normally, the Amendments are routine and are supported by the Advisory Committee. The subject one was not.

Amendment 52/89 deals with a change in Plan Policy which affects the Plan as a whole.

The purpose of the amendment is to delete waste disposal and related uses as a permitted use in the Escarpment Natural, Protection and Rural areas and the Mineral Resources Extraction Areas.

It was pointed out at the meeting that the amendment was not limited to quarries and included any landfill site within the above mentioned areas; but would not affect existing landfill sites.

After much discussion the amendment was not recommended by the Advisory Committee for the following reasons:

a) if approved, it would mean that an application to the N.E.C. for an amendment could be objected to by any interested party; not just the municipality, which could delay action and increase costs. (The Halton situation was cited as an example).
it was felt that municipalities have a better understanding for need of landfill sites, and therefore should not be subjected to such broad scrutiny, and

b) it was felt that more clarification was needed as to the meaning of landfill operations and waste is concerned because under the proposed amendment, it could affect the "blue-box" operation

Finally, it was agreed that, notwithstanding the five year review policy which starts this year, the existing Environmental Assessment Review policy should be sufficient in reaching a decision with respect to the appropriate location of a landfill site.

If further information is required, I would suggest that you contact Mr. Cecil Louis, Manager of Plan Administration, N.E.C., Georgetown, Ontario.

S Napper

S.R.N.

copy to: J. Thom

2.4

THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

Department of Engineering
71 Main Street West, Hamilton, Ont. L8N 3T4

Tel. (416) 546-4170
Fax (416) 526-6665

Refer to File No. E309-20
Attention of P. Jensen
Your file No.

June 6, 1990

Councillor J. Prentice, Chairman
Chairman's Advisory Committee on Environmental Issues

Re: Environmental Purchasing: Paper Products

Dear Councillor Prentice:

Regional Council, on October 3, 1989, approved the Statement of Principle for Environmental Purchasing as recommended by the Chairman's Advisory Committee. The Engineering Department is now employing the Statement of Principle in purchasing decisions.

The Statement of Principle reads as follows:

- "That in order to increase the development and awareness of Environmentally Sound Products, all departments in conjunction with Purchasing staff review their contracts and tender specifications for goods and services, to ensure that wherever possible and economical, specifications are amended to provide for expanded use of products and services that contain the maximum level of post-consumer waste and/or recyclable content, without significantly affecting the intended use of the product or service, and it is recognized that cost analysis is required in order to ensure that the products are made available at competitive prices."

As a practical application of the Principle, Solid Waste Operations investigated, and subsequently purchased, business cards printed on recycled paper. The card stock used contained 50% recycled fibre. The exercise of purchasing the cards may provide some useful information to the Committee.

Cont'd...

Environmental Purchasing: Paper products

Cont'd...

There are no specific guidelines with respect to the purchase of recycled paper. Selection must be made on a case by case basis, as recycled content alternatives exist for most grades of paper. The proportional content of recycled fibre varies widely, and there is a reasonable choice of paper textures, colours, and stock thickness available with recycled content.

As the term "recycled paper" is applied to both paper with post-consumer fibre and that containing mill sweepings, attention must be paid to percentage of recycled fibre contained in the paper. A low percentage may indicate the latter, and actually contain no post-consumer fibre.

Paper suppliers are responding to demand with a variety of products. Over the past few months, several large players on the supply side have announced major initiatives to convert their operations to recycled content production (Domtar, Noranda).

Future implications of demand for recycled paper include the potential viability of office and fine paper recycling programs. The development of Regional and Municipal internal recycling programs will be favourably impacted by demand for recycled paper. The decision to purchase paper with recycled content will 'close the loop'; the practice of paper recycling is incomplete without the corresponding act of purchasing paper with recycled content.

The Statement of Principle states that a "cost analysis is required in order to ensure that the products are made available at competitive prices". Information from paper suppliers indicates that recycled paper may cost five to ten percent more than paper with no recycled content, but in some cases, paper with recycled content can be less expensive than the alternative.

Cont'd...

Cont'd...

Solid Waste Operations staff actively encourage various sectors in the community to stimulate the recycling marketplace by practicing the principles of environmental purchasing. It is our hope that the experience of Solid Waste Operations in this regard will assist others who wish to pursue this practice, including other departments and agencies of the Region.

Phil Jensen, Waste Reduction Coordinator
Solid Waste Operations

PJ/vb

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71 Main Street West, Hamilton, Ont. L8N 3T4

Tel. (416) 546-4170
Fax (416) 526-6665

3 a)

Refer to File No. E308-02F
Attention of E. Goodger
Your file No

July 3, 1990

Mr. Chairman and Members
Chairman's Advisory Committee on Environmental Issues

Disposal of Household Hazardous Wastes

Members of the Committee:

ORIGIN

An update on household hazardous waste disposal options in this Region was requested at the June 14, 1990 meeting of the Chairman's Advisory Committee on Environmental Issues.

BACKGROUND

The Region has been holding Household Hazardous Waste (HHW) Programs for its residents since 1986. Specific days are set aside when residents can deliver hazardous materials from their homes to a designated location to be disposed of safely.

Traditionally the HHW Programs have been held at the Region's Waste Transfer Stations in the fall of the year. A licensed waste management company has been hired to operate the program, categorize the waste materials, and ensure their proper disposal.

Participation continues to increase however only approximately 1% of the households are taking part in the HHW Program. It is recognized that HHW Programs must be operated more frequently in order to improve participation.

There are other available disposal options for household hazardous wastes such as car batteries, propane tanks, and used motor oil. Several local companies accept these materials from the general public as part of their normal business operation. There is often a small charge for disposal.

Although there is no direct charge to residents who take part in the HHW Program, the programs cost on average $100.00 per participant. It is anticipated that the operating costs will continue to rise as the costs of disposal of hazardous materials continues to increase.

Cont'd...

Disposal of Household Hazardous Wastes

Cont'd...

ANALYSIS

Staff was authorized by Regional Council to investigate the establishment of a permanent facility for the disposal of Household Hazardous Wastes, to be operated by a waste management company. In response to this, Terms of Reference have been prepared and waste management companies will be invited to submit bids for the establishment and operation of a permanent HHW facility, on the basis of a five year contract.

It is proposed that initially the facility be open one day per week (Saturday) to receive wastes from regional residents. The operating schedule will be adjusted as required to satisfy the needs of the public.

It is anticipated that a contractor will be selected by September 1990 and that the first programs will be held in November 1990. It should be noted that the scheduling of the programs is entirely dependent upon approval of the facility by the Ontario Ministry of the Environment. The approvals process will be closely monitored and if determined to be appropriate, a fall program at the Transfer Stations, as done in the past four years, will be proposed in order to provide an interim option.

RECOMMENDATION

That this report be received for the information of the Committee.

Ted Gill

E.M. Gill, P. Eng.
Acting Commissioner of Engineering

EAG/

3 b)

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Refer to File No. E309-20
Attention of P. Jensen
Your file No.

July 3, 1990

Mr. Chairman and Members
Chairman's Advisory Committee on Environmental Issues

Mandatory Recycling

Members of the Committee:

ORIGIN

The issue of mandatory recycling was referred to the Chairman's Advisory Committee by the Engineering Services Committee.

BACKGROUND

Mandatory recycling is one method employed by municipalities to increase recovery levels and household participation in curbside recycling programs.

By-laws to make recycling a mandatory practice have been enacted in several municipalities, including Midland, South West Oxford, and Halton. Inquiries were made of Region of Halton and Town of Oakville staff with respect to the implementation, effectiveness, and enforcement of mandatory recycling, as the Halton regional structure was felt to be the most closely matched example relative to Hamilton-Wentworth.

Mandatory recycling in the Halton Region was initiated when Regional Council passed a two-part resolution that: a) banned curbside recyclables at the waste disposal facilities effective January 1, 1990; and b) requested that area municipalities enact by-laws terminating the collection of banned recyclables. The implementation of mandatory recycling, before enforcement, resulted in an immediate five to ten percent increase in collection volumes.

Oakville amended their garbage collection by-law accordingly, and an enforcement officer was hired for a six month period, although the mandatory recycling by-law is not being aggressively enforced. It was felt that the temporary position was adequate to establish the profile of mandatory recycling, and that the position could be reinstated at any time in the future should there be a need to resume or increase the level of enforcement activity.

Cont'd....

BACKGROUND (Cont'd)

Households in Oakville are considered to be in non-compliance with the by-law if their blue box is not placed at the curb on garbage day for four consecutive weeks, as determined by the enforcement officer. At this point, the officer may engage in a sequence of activities that allow householders an opportunity to comply before any "hard enforcement" takes place. The first step is to provide a letter and questionnaire, and, if non-compliance continues, the second step involves direct, personal contact. If the householder is unresponsive the third step includes refusal to collect garbage, followed, if required, by the imposition of a fine, which is the fourth and final step.

In Oakville, the fine is $100.00, and is described in their garbage collection by-law.

Although it is not the case in the Halton Region, mandatory recycling can also be applied to apartment dwellings and private properties. Specifically, such properties could be asked to provide recycling programs as a condition of receiving municipal garbage collection.

ANALYSIS

Mandatory recycling has the potential to increase participation in recycling programs, but can also detrimentally affect program cost effectiveness if improperly administered. Oakville has recognized this by avoiding the scenario in which households must place blue boxes at the curb every week. An increase in recycling vehicle stops due to collection of partially full boxes can raise program cost without a proportionate increase in program revenues.

In the case of Halton, the collection contractor initially reported that a number of half-full boxes were being placed at the curb. Over time, this inefficiency has become less pronounced. It should be noted that, as more materials are added to the curbside recycling stream Town of Oakville officials anticipate that blue boxes will be at the curb on a weekly basis, and that enforcement by collection crews will eventually be based on weekly compliance. Depending on other household demographics and consumption habits, this may in fact promote an inefficiency in the system.

Cont'd...

Mandatory Recycling

Cont'd...

ANALYSIS (Cont'd)

The effectiveness of mandatory recycling may be negligible in residential areas with high participation levels. Concerns regarding public relations as they pertain to enforcement should be weighed before a plan of enforcement is described, as was the case in Oakville.

In Hamilton-Wentworth, responsibility for enforcement would lie with the area municipalities, as they have the jurisdiction over garbage collection by-laws. As in Halton Region, any resolution calling for a ban on recyclables at the solid waste disposal facilities would be incomplete without a request for amendment of local collection by-laws.

The immediate increase in collection levels experienced by Halton highlights the value of the promotional component associated with the implementation of mandatory recycling. An effective and extensive introductory advertising campaign appears to be essential to the success of mandatory recycling.

FINANCIAL IMPLICATIONS

N/A

RECOMMENDATION

That this report be received as information.

Ted Gill

E.M. Gill, P. Eng.
Acting Commissioner of Engineering

PJ/md

Ministry of Natural Resources
Minister

Ministère des Richesses naturelles
Ministre

Ontario

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MAY 30 1990

To: Ontario Municipalities (except those bordering Lake Erie)

Subject: Zebra Mussels

I am writing to you as chairman of the Ontario government's Steering Committee established to deal with the zebra mussel issue. You may have heard about the recent infestation of zebra mussels in Lake Erie and Lake St. Clair, and their enormous impact on municipal, industrial, and hydro water facilities. When large numbers of zebra mussels colonize inside intake pipes, water flow becomes greatly reduced. The cost to Lake Erie water users of removing the mussels and preventing further buildup has been estimated in the millions of dollars. This obviously has serious implications for municipal water suppliers. The molluscs may also be damaging our fisheries resource by consuming plankton, coating spawning shoals, and possibly transferring exotic parasites and diseases to native fishes.

In order to coordinate efforts to control (where possible) and help slow the spread of this nuisance species, the Ontario government has organized the efforts of the ministries of Environment, Natural Resources, Municipal Affairs, Intergovernmental Affairs, Tourism and Recreation, and Treasury and Economics, and designated the Ministry of Natural Resources (MNR) as the lead ministry.

The major objectives of "Project Zebra Mussel" are to develop a coordinated provincial program, to develop government policy, and to be responsible for control, research, monitoring, and assessment of the impact that zebra mussels are having in Ontario.

The range of the zebra mussel continues to expand. Besides inhabiting lakes Erie and St. Clair, zebra mussels have been reported in the Niagara River, at the mouth of the Welland River near Lake Ontario, near Bath on Lake Ontario, near Cornwall on the St. Lawrence River, in Duluth Harbor of Lake Superior, and near Milwaukee and in Green Bay of Lake Michigan. There is also an unconfirmed report of mussels located near Grand Bend on Lake Huron. We expect the zebra mussel may spread through Lake Ontario and into the Rideau and Trent-Severn systems as early as this summer.

Your local Ministry of the Environment Regional office is available to provide technical assistance in dealing with the zebra mussel in water intake pipes. It is important to develop two-way communication in order to prevent duplication of effort. Please keep the Ministry of the Environment informed of current and future studies your municipality is conducting regarding the effects of zebra mussels on water intake facilities.

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The Ministry of the Environment has produced the following reports: "The Zebra Mussel, Dreissena polymorpha: a Synthesis of European Experiences and a Preview for North America" and "The Zebra Mussel, Dreissena polymorpha: a Photographic Guide to the Identification of Microscopic Veligers". If you would like to receive a copy of these reports, please contact the Ministry of the Environment's Public Information Centre in Toronto at (416) 323-4321.

We want every municipality to be aware of the zebra mussel. Enclosed is some communications material the Ministry of Natural Resources recently distributed to the media and interest groups. This information package provides background on the zebra mussel and explains how boaters, anglers, and cottagers can help slow its spread. Please feel free to copy and distribute this material as needed.

If you have any questions about the Ontario government's "Project Zebra Mussel" or want more information about the zebra mussel in general, please contact:

Mr. Bill Murch, Information Services Coordinator
Aylmer District Office
Ministry of Natural Resources
Aylmer, Ontario N5H 2S8
Telephone: (519) 773-9241
Fax: (519) 773-9014

or Dr. Douglas Dodge
Great Lakes Fisheries Program Coordinator
Fisheries Branch
Ministry of Natural Resources
Room 3423, Whitney Block, Queen's Park
Toronto, Ontario M7A 1W3
Telephone: (416) 965-7885
Fax: (416) 324-7293

We appreciate your assistance and cooperation in coping with the zebra mussel problem.

Yours sincerely,

Jack Riddell, MPP Huron
Parliamentary Assistant to
Minister of Natural Resources

Enclosures

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cc: With enclosures:
Members of the Zebra Mussel Steering Committee
Members of the Zebra Mussel Ad Hoc Interministerial
Coordinating Committee
M. Turner
G. Tough
J. Butler
All MNR Assistant Deputy Ministers
R. Christie
G. Beggs
D. Dodge
P. Skrypek
B. Murch
R. Vrancart, Lands and Waters Group, MNR
All MNR Regional and District Offices
All MOE Regional and District Offices
G. Hopcroft, Association of Municipalities of Ontario

Ontario

Ministry of Natural Resources

Ministère des Richesses naturelles

MINISTRY OF NATURAL RESOURCES
GUIDELINE ON ZEBRA MUSSELS

ISSUE

Zebra mussels have been found in most of the Great Lakes, with the highest concentrations in the west half of Lake Erie and in Lake St. Clair. The dispersion of this animal into Ontario's waters has the potential to alter drastically fish communities and may cause the decline of fish populations, substantially damaging Ontario's sport and commercial fishery, tourism industry, as well as fishing and boating-related businesses. In addition, the zebra mussel has the potential to cause billions of dollars damage to municipal and industrial water intake pipes in the Great Lakes region by the end of the decade.

To help prevent or slow the spread of the zebra mussel, this guideline has been developed to ensure that caution is exercised in moving live fish, boats, or any other device, from one waterbody to another. Slowing the spread of zebra mussels now will provide time for researchers to find methods for controlling them.

BACKGROUND

The zebra mussel, likely introduced from Europe through ballast water discharge, is known to reproduce at a phenomenal rate. Ministry of Natural Resources researchers have determined that zebra mussels colonize at many depths and will attach to almost any surface. Adults can be transferred around a lake or from lake to lake by attaching to boat hulls or to any equipment which is left in the water for a short period of time. However, the main method of colonization is the spread of the free-floating larvae known as "veligers." This microscopic larval stage is usually present from early May to October, depending on water temperatures, and cannot be seen with the naked eye.

Municipalities and utility companies are very concerned because adult mussels significantly reduce the flow in water intake pipes. Adult mussels are also found in very high densities on spawning beds which can seriously harm fish populations. Since the zebra mussel's primary food is plankton, they compete with young fish for food.

INDIVIDUALS AFFECTED

1. Baitfish harvesters on the Great Lakes and connecting waterways.
2. Commercial fishermen harvesting and transporting live fish to restaurants, or to pay ponds in the United States.
3. Charter boat operators and anglers moving their boats from lake to lake.
4. Boaters with live wells on board.
5. Ministry of Natural Resources staff transferring adult brood stock from the Great Lakes to stock in inland waters.
6. Commercial fishermen transporting fishing gear from the Great Lakes to inland waters.
7. Divers moving scuba gear from the Great Lakes to inland waters.

AGENCIES CONCERNED

1. The Ministry of Natural Resources wants to prevent or slow the movement of the mussel into inland waters. At the same time, Ontario supports an important baitfish industry with a significant amount of the harvest being wholesaled to southern Ontario baitfish dealers.

2. Many American states are very concerned with the movement of live fish from the Great Lakes region. Ontario exports large numbers of live bait fish and food fish to pay ponds in northern states. If the concern becomes great enough, there may be no markets for live Ontario fish.

GUIDELINE ACTIONS

In order to prevent or slow the dispersion of the zebra mussels into Ontario's inland waters, the following preventative methods must be followed:

Transfer of live fish

It is illegal to remove and deposit live fish from one waterbody to another without the appropriate licence issued by the Ministry of Natural Resources. However, for recreational angling purpose only, live bait fish may be taken from one waterbody and used as bait in another waterbody. Do not dump unused bait into the waterbody after you have finished angling.

The Ministry of Natural Resources requests that anyone moving live fish from the Great Lakes be extremely careful as the veliger stage of the zebra mussel may also be transported in the water.

When transporting live fish, immediately transfer them into clean water from one of the following sources:

1. well water;
2. chlorinated water;
3. water treated with ultra-violet light;
4. water from self-contained ponds (i.e. no inlets or outlets).

If immediate exchange of clean water at the Great Lakes site is not possible, Great Lakes water must be discarded on the ground once it is replaced with clean water. Water SHOULD NOT be flushed down toilets, sewers or sinks, or discarded near any waterbodies to avoid contamination of these systems.

Equipment

Equipment for harvesting fish and scuba gear used in the Great Lakes should not be moved to other lakes unless it is sterilized with a household bleach solution -- 15 mL (one tablespoon) household bleach per 4.5 litres (one gallon) of hot soapy water -- or thoroughly dried in the sun (i.e. three days in hot, dry weather).

Boats

Clean your boat before moving it from an infested lake to another lake. Transporting zebra mussels from infested to non-infested waters is the main way in which the pest is spread.

Always take your boat out of the water and inspect it before entering inland waterways from the Great Lakes.

In the early stages zebra mussels are small and hard to spot. Pass your hand over the bottom of the boat. If it feels grainy, you may have zebra mussels. Do not take a chance, clean them off.

The best tool for cleaning your boat's hull is a paint scraper. It will take some effort to knock them loose. Be careful, the shells can be very sharp and you could cut yourself.

On wood, aluminum or steel boats, zebra mussels remove the first layer of paint when they attach. Scrape down to the bare wood or metal and repaint. With fibreglass boats, be extra careful not to break the gelcoat or glass.

Mussels can be removed from boats hulls and live wells by cleaning with the bleach solution.

You can also remove mussels with high pressure water (at least 250 pounds per square inch), or by steam cleaning.

If the weather is hot and dry, leave your boat out of water for two or three days; the mussels will die, and most will drop off.

Certain polymer waxes appear to discourage zebra mussel attachment. However, still check your hull for mussels attached to drain holes and speedometer brackets. Anti-fouling paints are not a method of zebra mussel control, as their effect on aquatic life is not known.

If zebra mussels clog intake pipes and cooling systems of your boat, the only solution is to replace the pipes, as the mussels are almost impossible to remove. Watch your boat's temperature gauge if you spend long periods of time in infested waters such as Lake Erie, Lake St. Clair and parts of Lake Ontario.

General

DO NOT USE THE HOUSEHOLD BLEACH SOLUTION NEAR ANY WATERBODY AS THE AQUATIC LIFE IN THAT WATERBODY COULD BE ADVERSELY AFFECTED.

Dispose of zebra mussels in garbage containers or bags. Don't leave scrapings on the shoreline, as the mussels may be returned to the lake by wave action or surface runoff.

Inspect your cottage's water intake pipe regularly. If an intake pipe is encrusted, replace it. Move the intake into deeper water, since zebra mussels tend to colonize in shallower waters.

Take extra care when swimming in areas that contain zebra mussels. To avoid cuts, wear running shoes.

IF YOU ARE ALREADY INLAND and have a boat or other equipment that may contain Great Lakes water (and therefore zebra mussels), ensure that you clean the equipment thoroughly and dump the water on dry land well away from any waterbody or sewer system.

If you follow these suggestions and check your boat carefully, you will help protect valuable fish habitat and save millions of dollars in repair work.

For more information about the zebra mussel or this guideline, contact your local district office of the Ministry of Natural Resources.

For more information about zebra mussel control on water intake and outflow pipes, contact your local regional office of the Ministry of the Environment.

Issued April 10, 1990
Updated May 29, 1990

Research being conducted on the infestations include an MNR study on the impact of zebra mussels on the fisheries, and another study commissioned by the Ministry of the Environment on the spread of the zebra mussel.

The parliamentary assistants appointed to the steering committee include:
Peter Adams - Ministry of the Environment
Bill Ballinger - Ministry of Municipal Affairs
Alvin Curling - Ministry of Intergovernmental Affairs
Ed Fulton - Ministry of Tourism and Recreation
Doug Reycraft - Ministry of Treasury and Economics

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REMARQUE : Version française disponible.

FOR MORE INFORMATION:

Doug Dodge
Fisheries Branch
TORONTO (416) 965-7885

Anne White
Communications Services Branch
TORONTO (416) 965-2756

Ministry of Natural Resources
Ministère des Richesses naturelles
Ontario

Fact Sheet
Actualités

May 1990

ZEBRA MUSSELS

WHAT ARE THEY?

The zebra mussel (Dreissena polymorpha) is a clam-like animal that gets its name from its striped shell. Zebra mussels grow to about four centimetres (one-and-a-half inches) and may live up to five years.

Populations were found only in Europe until zebra mussels were collected from the waters of Lake St. Clair in June 1988. Scientists believe the zebra mussel was introduced into the lake by a ship discharging ballast water picked up in a European port.

WHERE ARE THEY?

The fertility of the zebra mussel (one female can produce about 30,000 eggs annually), its free-floating, microscopic larval stage, its ability to travel attached to boat hulls, and its ability to adapt to the habitat in the Great Lakes have allowed it to spread quickly. Populations of zebra mussels have been found in Lake St. Clair, Lake Erie, the Niagara River, the Welland Canal, the western and eastern ends of Lake Ontario, near Cornwall in the St. Lawrence River, in parts of Lake Michigan, and in Duluth Harbor of Lake Superior. There is also an unconfirmed report of zebra mussels near Grand Bend in Lake Huron. Scientists predict zebra mussels will invade inland lakes and rivers, hitching a ride on boat hulls, or travelling in bait buckets used by anglers.

WHAT KIND OF DAMAGE ARE THEY CAUSING?

Zebra mussels attach themselves to a variety of surfaces and may build up colonies several layers thick. Reefs, boats, piers, breakwalls, water intake pipes, rocks, aquatic plants and even other animals such as clams and crayfish become covered with the molluscs. Reports of reefs near Pelee Island in Lake Erie have shown counts as high as 30,000 mussels per square metre. Once the mussels are attached, they are extremely difficult to remove.

Large concentrations of zebra mussels have been found attached inside municipal, power plant and industrial water intake pipes in both Ontario and the United States. As a result, water flow is significantly reduced, in some cases by more than 50 per cent. It has been estimated that removing the mussels and preventing further buildup could cost water users hundreds of millions of dollars around Lake Erie alone.

Although little is known about the damage zebra mussels may do to Great Lakes fisheries, the potential is great. By consuming plankton, mussels could reduce the amount of food available for the young of some fish species. By colonizing spawning shoals, they could decrease the survival rate of fish eggs, especially walleye and lake trout. The zebra mussel is probably responsible for improving water clarity in western Lake Erie. While this phenomenon has some advantages, clearer water could drive light-sensitive walleye into deeper waters and away from traditional feeding areas, causing a loss in inshore fishing. There are also dangers that the zebra mussel could transfer parasites and diseases to native fish.

When zebra mussels colonize boat hulls they increase drag and fuel consumption. Mussels can also clog boat intake pipes and cooling systems, leading to costly repair and replacement work.

WHAT IS BEING DONE ABOUT THEM?

Zebra mussels are here to stay. Nothing can be done to eradicate them, but there are ways to avoid introducing more of them into the Great Lakes, curb their spread into inland waters, and control current populations. Slowing their spread will bide us time for researching ways to control them. To help prevent further exotic introductions, the Coast Guard is asking commercial ship operators to exchange ballast water voluntarily before entering the St. Lawrence Seaway. Methods for controlling exotic species in ballast water are being investigated.

Mechanical removal of the mussels from municipal and industrial water intake pipes has proved difficult and expensive. It is also only a temporary solution, since mussels quickly grow back. Chemical removal methods, including chlorine, are being investigated.

The zebra mussel has few natural predators. Fish (whitefish, sturgeon, freshwater drum, carp) and waterfowl (mainly diving ducks and gulls) feed on the mussel. Unfortunately, diving ducks are unlikely to control zebra mussels because the birds do not overwinter in Ontario as they do in parts of Europe, where the ducks appear to be exerting some control over mussels. Also, none of the predators are present in sufficient numbers to keep the populations of mussels under control in Ontario.

Current research efforts into the behavior and effects of the zebra mussel in Ontario include studies by the Ministry of Natural Resources on the zebra mussel's impact on our fisheries. The Ministry of the Environment and Ontario Hydro are studying various control measures to prevent colonization of water intake pipes. The Ministry of the Environment has also commissioned a study on the dispersion rate of zebra mussels in the Great Lakes.

The provincial government (lead by the Ministry of Natural Resources) is developing a comprehensive approach to managing the zebra mussel problem. The major objectives of the initiative are to develop a co-ordinated provincial program, to develop government policy, and to be responsible for control, research, and assessment of the zebra mussel.

WHAT CAN YOU DO TO HELP?

The most effective way to prevent or slow the spread of zebra mussels is for boaters, cottagers, and sport and commercial fishers to take the following precautions:

- **Clean your boat before moving it from an infested lake to another lake.** Transporting zebra mussels from infested to non-infested waters is the main way in which the pest is spread.

- Always take your boat out of the water and inspect it before entering inland waterways from the Great Lakes.

- In their early stages zebra mussels are small and hard to spot. Pass your hand over the bottom of your boat. If it feels grainy, you may have zebra mussels. **Do not take a chance, clean them off.**

- Mussel larvae can be removed from boats hulls and from live wells by cleaning with a household bleach solution of 15 ml (one tablespoon) bleach per 4.5 litres (one gallon) of hot, soapy water. Do not use the bleach solution near waterbodies or sewers, as the mussels and residual chlorine could be returned to the water.

- The best tool for cleaning your boat's hull is a paint scraper. It will take some effort to knock the mussels loose. Be careful, the shells can be very sharp and you could cut yourself.

- On wood, aluminum or steel boats, zebra mussels remove the first layer of paint when they attach. Scrape down to the bare wood or metal and repaint. With fibreglass boats be extra careful not to break the gelcoat or glass.

- You can also remove mussels with high pressure water (at least 250 pounds per square inch), or by steam cleaning.

- If the weather is hot and dry, leave your boat out of the water for two or three days; the mussels will die, and most will drop off.

- Dispose of zebra mussels in garbage containers or bags. Don't leave scrapings on the shoreline, as the mussels may be returned to the lake by wave action or surface runoff.

- Certain polymer waxes appear to discourage zebra mussel attachment. However, still check your hull for mussels attached to drain holes and speedometer brackets. Anti-fouling paints are not a method of zebra mussel control, as their affect on aquatic life is not known.

- If zebra mussels clog intake pipes and cooling systems of your boat, the only solution is to replace the pipes, as the mussels are almost impossible to remove. Watch your boat's temperature gauge if you spend long periods of time in infested waters such as Lake Erie, Lake St. Clair and parts of Lake Ontario.

- Do not transport bait fish or live fish from one lake to another. Dumping water that contains zebra mussel larvae into another lake could introduce the mussels. **Use caution: Do not take water from one lake and deposit it into another lake.**

- Encrusted commercial fishing nets should be cleaned by leaving them out in hot, dry weather for two or three days. Most of the mussels will fall off, and the ones remaining can be removed easily.

- Inspect your cottage's water intake pipe regularly. If an intake pipe is encrusted, replace it. Move the intake into deeper water, since zebra mussels tend to colonize shallower waters.

- Take extra care when swimming in areas that contain zebra mussels. To avoid cuts, wear running shoes.

If you follow these suggestions and check your boat carefully, you could help protect valuable fish habitat and save millions of dollars in repair work.

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REMARQUE : Version française disponible.

FOR MORE INFORMATION:

- on the zebra mussel, please contact your local district office of the Ministry of Natural Resources.

- about zebra mussel control in water intake or outflow pipes, contact your local regional office of the Ministry of the Environment.

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